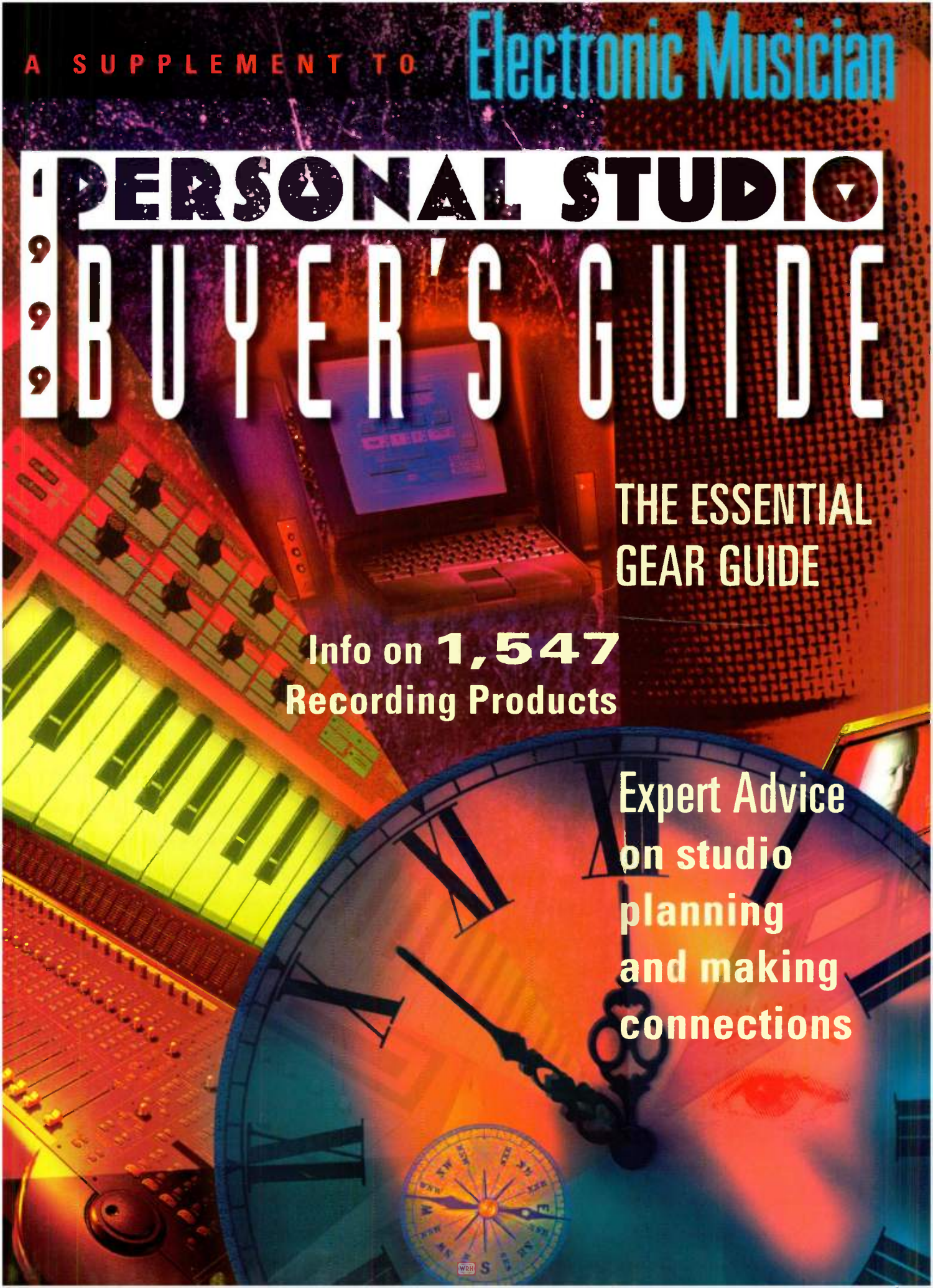
A SUPPLEMENT TO Electronic Musician

1999 PERSONAL STUDIO BUYER'S GUIDE



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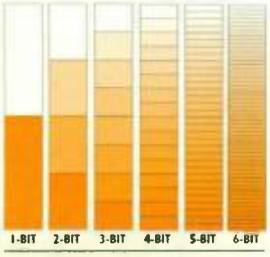

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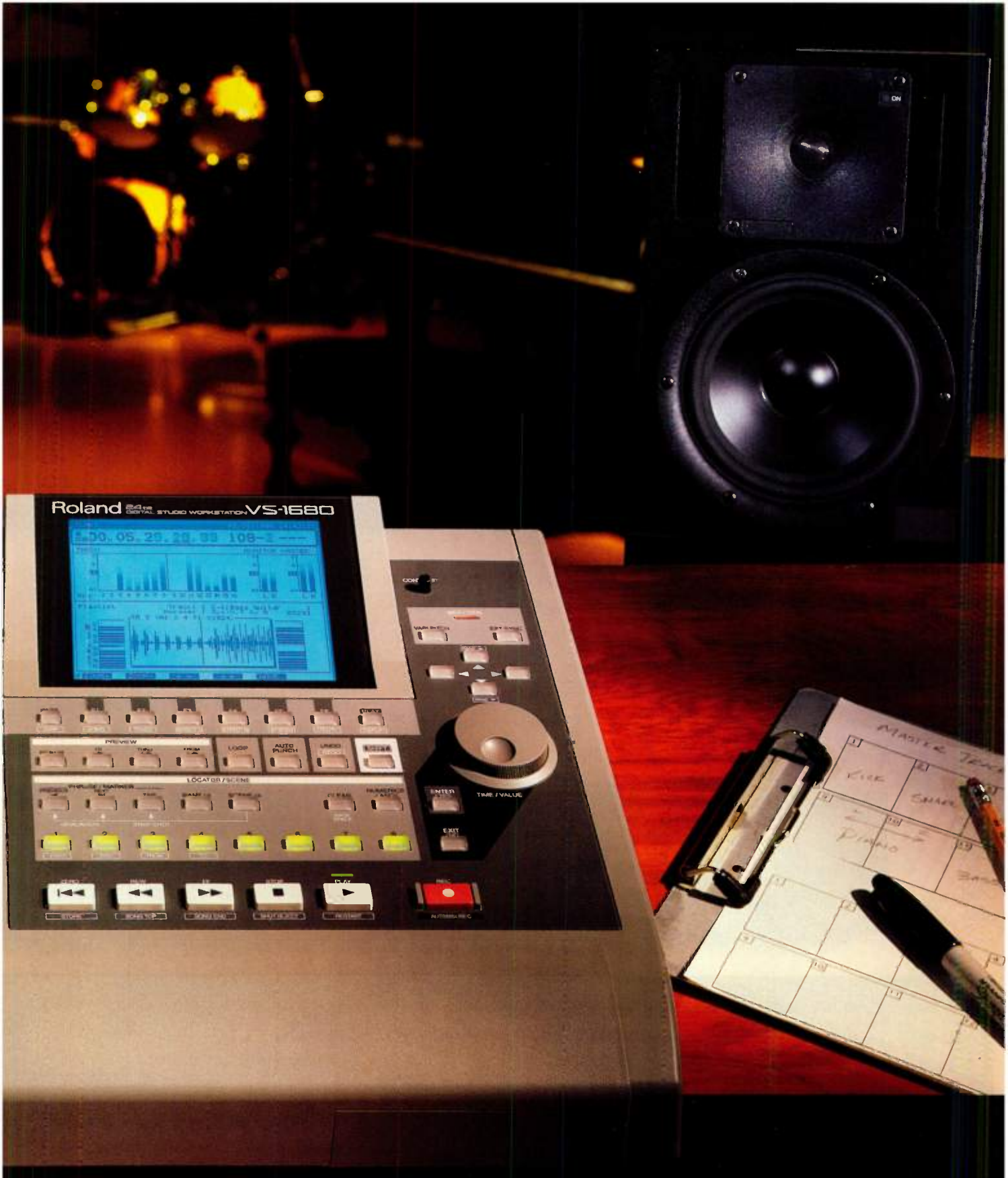

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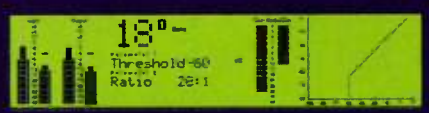
Gate

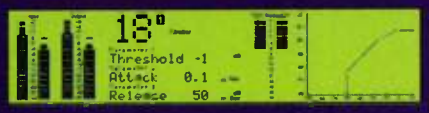


Start with the gate. Set parameters for threshold, ratio, attack, hold, release, and output gain. See the effect of your settings on the graphical display, as well as on the gain reduction and audio level meters, they all interact in real time with your manipulation of the parameters. Start with a threshold setting of about -60dB to clean off the noise in between the vocal takes. You can save your final gate settings as a "gate preset" building block and recall it into any other setup you do.

Compressor

Then move to the compressor. The effects of the gate settings are still visible on the graphic display, so let that help you determine where to set your compressor threshold. The parameters you change here will also effect the curve on the graphical display in real time. Move through all the regular parameters, like threshold, ratio, attack, release, and output gain. For vocals use a threshold of about -25dB, a ratio of about 3:1 or 4:1, and a slow attack and fast release for the most natural sounding effect. Your compressor settings can also be saved off as a building block to be called up into any other preset.

Limiter



On to the limiter. Changes you make to the limiter settings are also seen on the graphical display. Adjust the level up or down to suit your needs. The flat top line of the display moves up and down as you adjust the level. You can also set the speed at which the the limiter lets go of the signal as it goes below the threshold. This is truly smooth limiting, with patented dbx PeakPlus™ algorithms, so rest assured that where ever you set your threshold level, your tape will not distort, and your signal will not get butchered as it goes across the threshold. And like the other parts of the processor, your limiter settings can be named and saved for later recall.

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EQ offers 20Hz to 20kHz, Q, ±12dB, and SCMonitor.

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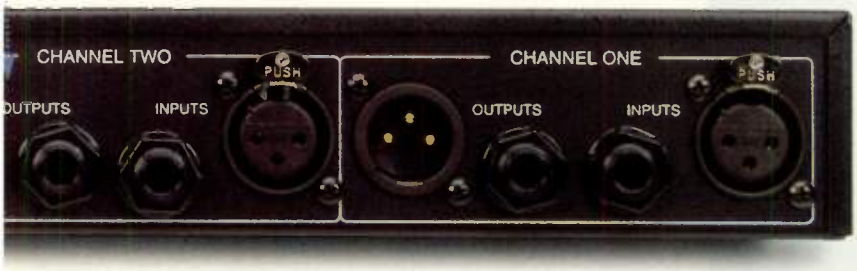
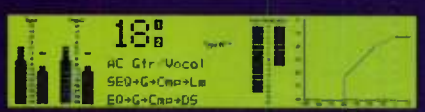


De-esser

De-essing works the same way: see the effects of your settings displayed on the graph. Parameters here are the common ones: threshold in frequency, 800Hz to 8kHz, and amount in percent. Other available processing includes EQ - both in-path and sidechain, for special-effect types of processing. When you are editing any of the building blocks, its icon is visible on the display, and the parameters are shown on the graph, so it's always easy to know where you are. Parameters are easy to see in this page driven operating system. When it's as complex as this, it's nice to know somebody was thinking when it was put together.

and More



You can also work in stereo, or set up a completely different and independent processing chain for the other channel. Also, notice that the audio meters are capable of showing both peak and average levels for input and output. Optional digital output with the TYPE IV™ Conversion System with TSE™ (Tape Saturation Emulation) provides up to 24-bit output in either AES/EBU or S/PDIF formats with the trademark digital processing of TYPE IV™. The DDP also has full MIDI/Automation capability, with separate midi in and thru jacks. Entire processing setups may also be saved into one of 50 user defined presets, or use one of the 50 factory setups.

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• With the extensive metering of the DDP, you can see EXACTLY what is going on with ALL parts of your signal: input, internal processing, and output, with peak and VU, as well as gain reduction for both sides of the stereo image.

• And speaking of stereo, you can work in stereo with dbx's True RMS Power Summing™ for phase-coherent tracking, or in dual mono mode, without the two channels interacting at all, making the DDP a great processing value.

It Never Forgets

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• When you save a preset, you also save the information that makes it work behind the scenes, too. Digital output (optional), sample rate performance, MIDI setup, as well as any of the other utilities, like sidechain setup and monitor, EQ settings, and SysEx functions.

• When you make changes to any parameter, you can see where your adjustments are effecting the signal, simply by looking at the Hi-Res graphical display, which shows the processing curve in real time as you make your adjustments.

Check out the DDP at your local pro audio outfitter, and experience DIGITAL performance you'll never forget.

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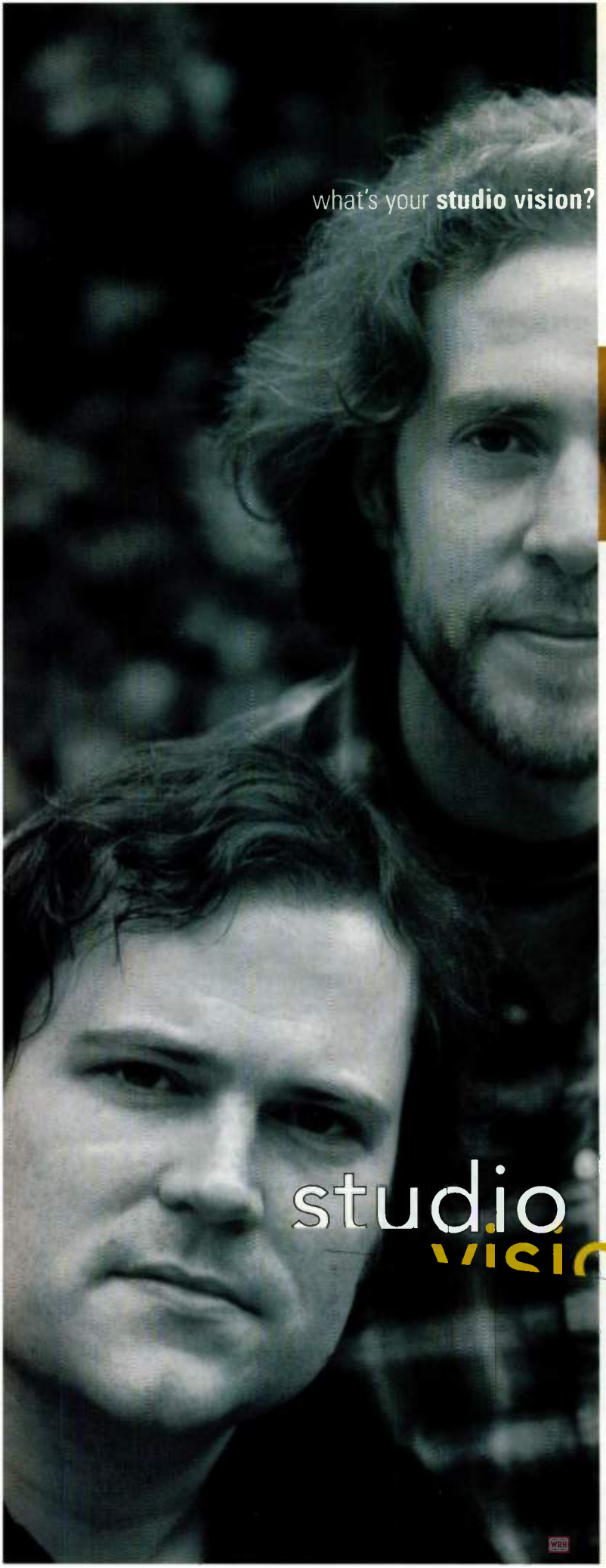

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Software shown is Steinberg Cubase VST. Tria subwoofer not shown. CPU, cables, and mouse not shown.
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Table of Contents

1999 PERSONAL STUDIO BUYER'S GUIDE

A supplement to Electronic Musician magazine

12 **Production Notes**
by Barry Cleveland

16 **Holistic Studio Design**
by Steve Oppenheimer

24 **Patch Bay Primer**
by Brian Knave

32 **The Word on Clocks**
by Erik Lovell

40 **Power Hitters**
by Steve Oppenheimer

162 Ad Index

175 Manufacturer Index

46 **The Charts**

HUNDREDS OF RECORDING PRODUCTS, DESCRIPTIONS, SPECS, AND PRICES

46 Audio/Sound Cards
50 Audio Patch Bays
52 Digital Audio Workstations
58 Digital Mixdown Machines
62 Direct Boxes
66 Dynamics Processors
74 Effects Processors
82 Headphones
84 Keyboard Workstations
88 MIDI Interfaces, Patch Bays, and Processors
94 Microphones
104 Microphone Preamps
110 Mixing Consoles
118 MiniDisc and Cassette Multitracks
118 Modular Digital Multitracks
120 Modular Hard-Disk Recorders
122 Power Amps
132 Power Conditioners
138 Recording/Editing Software
142 Reference Monitors
152 Sequencers (MIDI and Digital Audio)
160 Software Plug-Ins
166 Sonic Treatment
170 Studio Furniture
174 Synchronizers

Software vs. Hardware: A PARIS Perspective

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Production Notes

THE BIG PICTURE

IT'S NOT JUST WHAT YOU USE, IT'S THE WAY THAT YOU USE IT!

As an **EM** subscriber, you expect the most up-to-date information available about music technology and production, particularly as it pertains to the personal studio. Last year, we published the first edition of *Electronic Musician's Personal Studio Buyer's Guide*, and it received a very enthusiastic response. We're hoping that this second edition of the PSBG will be even more popular.

In the 1999 edition, we have compiled specifications for over 1,300 products and added three new product categories. But we haven't just given you technical information about recording products; we also have tried to help you understand how the various types of products relate to one another. To that end, we have assembled four articles that focus on connectivity and system design.

First up is "Holistic Studio Design," written by **EM** Editor Steve Oppenheimer. Applying holistic systems theory to studio design, Steve has created a model that will help you see the "big picture" when determining your current and future studio needs. Steve O. has also contributed a very informative article on power conditioning and its importance as a fundamental part of any recording environment.

Once your equipment is powered up you'll want to be able to make and change audio connections easily, which means that you'll need a patch bay. **EM** Associate Editor Brian Knave explains what patch bays are, how they work, and how they can make your life much easier.

So far so good, but what if you purchase several digital devices and connect them to each other, only to find that they seem to be operating in different time zones? Perhaps they are! Erik Lovell explains why and what you can do about it in "The Word on Clocks."

As you can imagine, acquiring and organizing all of the information supplied in this guide was no picnic. For example, the unsinkable Carl Weingarten contacted hundreds of manufacturers and helped direct the seemingly endless stream of data that they provided. **EM** Assistant Editor and resident database genius Joe Humphreys created and managed the custom database used to contain and control the data, and Production Director Ellen Richman added a touch of beauty to our otherwise bland proofing forms.

At the other end, PSBG Art Director Linda Gough labored mightily while creating the many product tables, and even Publisher John Pledger rolled up his sleeves and helped out when one particularly threatening deadline loomed large on the horizon. As PSBG's Editorial Director, Steve O. conceived and assigned the feature stories and generally acted as the volunteer fire department.

We hope that you will make all of our efforts worthwhile by using this guide to realize your personal studio dreams.

Barry Cleveland
Editor, Personal Studio Buyer's Guide

Barry Cleveland

1999 PERSONAL STUDIO BUYER'S GUIDE

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A supplement to Electronic Musician magazine

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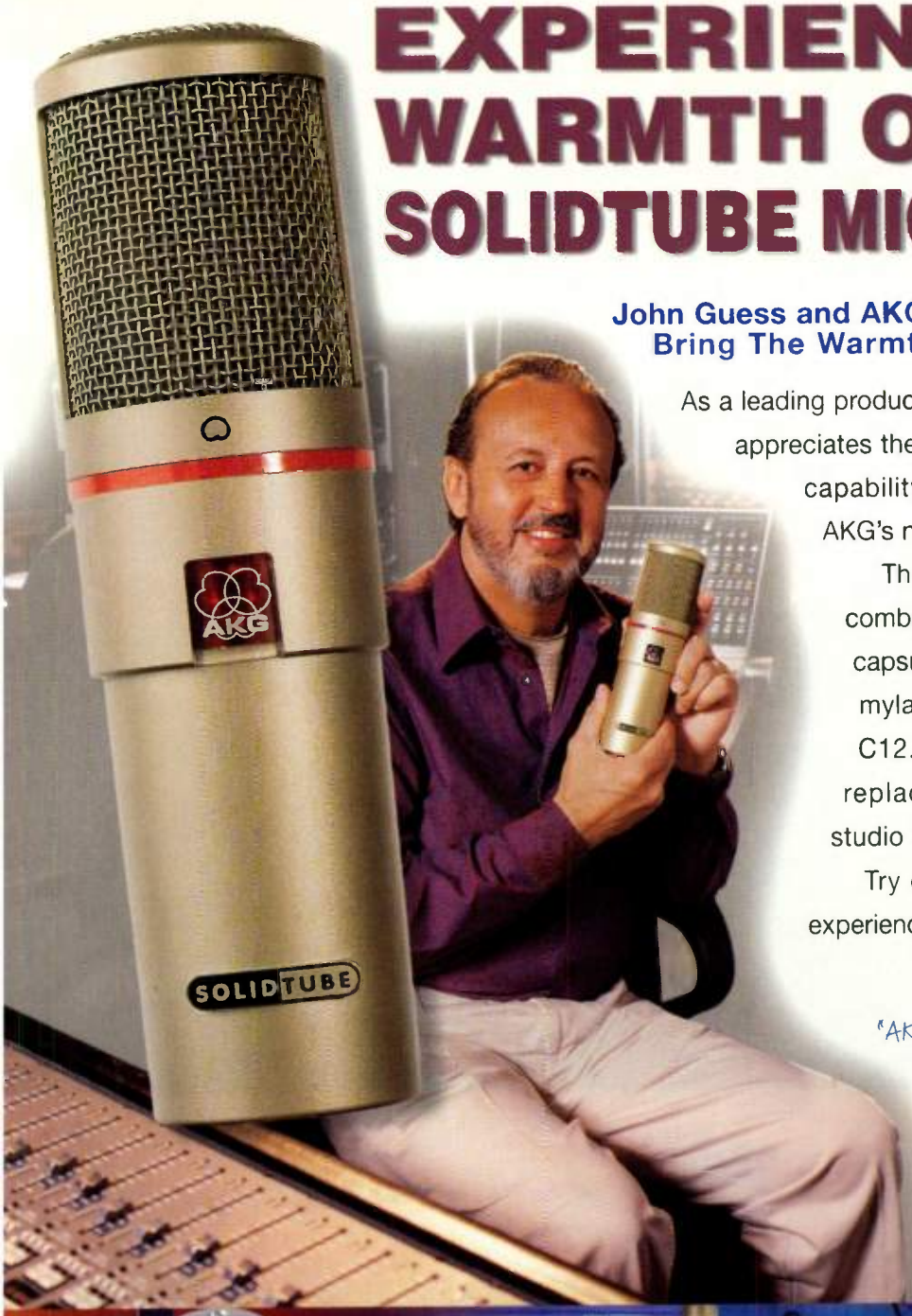

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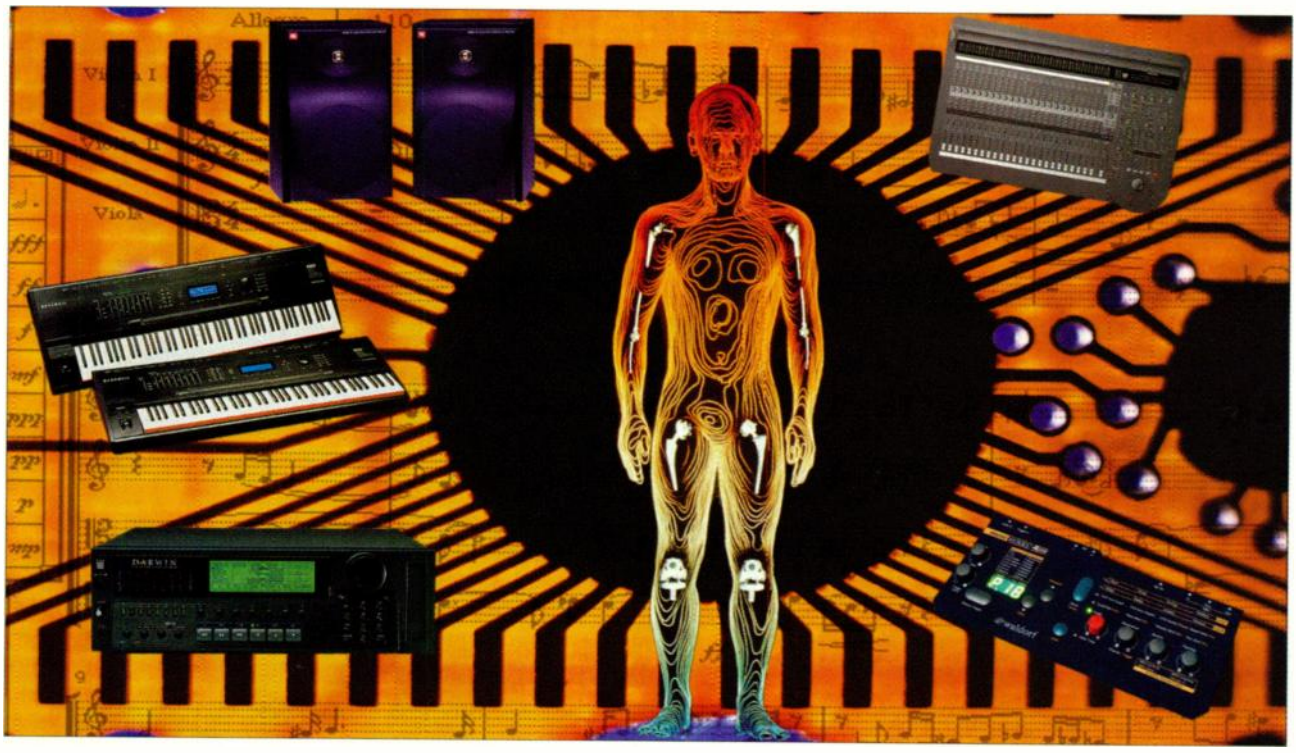
By Steve Oppenheimer

Holistic Studio Design



How to design a studio that helps you achieve your goals.

Many musicians assemble or expand their personal studios by simply buying gear that catches their fancy. But if you're trying to build a workable recording studio, it's not enough to simply check out pieces of gear and buy what excites you (assuming you can afford it).

Even when you buy quality equipment and use it in accordance with the manufacturer's instructions, the results can sometimes be disappointing. Some equipment doesn't "play well with others," causing interfacing problems, degraded audio quality, software conflicts, and so forth. Features are wastefully duplicated, and money flows to buy more gear to make the gear you bought do what you thought it would do to begin with. Poor ergonomics can make working in the studio unproductive or even unpleasant. Eventually, this gets frustrating, which dulls the pleasure of producing music. What's a personal-studio owner to do?

THE HOLISTIC MODEL

Admittedly, sometimes we all get surprised by "gotchas" that couldn't have been anticipated. But in many cases, you can avoid these problems with systematic planning done in advance. You need to carefully analyze your studio needs and plan how the elements will integrate into a functional whole. In short, a well-integrated studio can be thought of as a single, complex machine.

How does one go about analyzing a studio in this way? I suggest you apply a structural-functional model in which you conceive of your studio as a holistic system that has a structure—that is, an organized arrangement of parts. Each part of the system—each piece of gear—has a function, which is the contribution the part makes to the whole system. The parts occupy "statuses"—sound source, controller, effects processor, acoustic condi-

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tioner, cable, etc.—in a network made up of the relationships between individual pieces of equipment.

The studio exists in a physical environment—a room of a certain size, with structurally determined acoustics and considerations such as outside noise, ventilation, temperature, humidity, and so on—and its growth depends on available resources: your time, space, and money. By considering all of these aspects, you can plan a total studio system that is a functional unity.

DEFINE YOUR OBJECTIVES

Of course, a recording studio serves a definable purpose, so let's start there: consider what you plan to do with the studio now, tomorrow, and a few years down the line. Are you doing preproduction with the intent of mixing in a commercial studio? Are you producing music CDs, audio for picture, live recordings, or something else? What styles of music do you want to produce? Will you have outside clients or record only your own music? Will some of the gear be used on stage or hauled to other studios in addition to serving in your studio?

Next, thoroughly analyze all aspects of your production methods until you clearly understand how you like to work. How important is automation? Do you feel comfortable recording with a computer? Do you want to do in-depth, complex editing—in which case some form of hard-disk recording might be best—or would you rather keep it simple and just record to tape?

Based on your objectives and preferred working style, consider which functions are necessary to achieve your goals. Will you use only electronic sound sources, or will you record acoustic instruments and vocals? If the latter, for example, you probably need to take a look at preamps and dynamics processors, and you might need a cleaner, more detailed reverb. Do you like to do elaborate, automated, real-time effects processing? If so, you might want to invest in MIDI-controllable outboard processors, even if you also use audio software with real-time DSP plug-ins, so you can do a lot of processing on multiple tracks without overly taxing your computer CPU.

If you want to do a lot of in-depth audio editing, a hard-disk recorder with SCSI, good sync features, and both digital and analog I/O might be a good idea. Then again, if you like to work with a lot of tracks simultaneously, an MDM might be a sensible investment—or maybe you need both. How important is portability? That could call for a modular hard-disk recorder, MDM, or MiniDisc machine. Continue this process as far as you can take it.

STATIC VS. DYNAMIC SYSTEMS

Of major importance is whether your studio will be a static system or a dynamic system that will undergo change in the foreseeable future. Small, tightly integrated "studio in a box" systems (such as MIDI keyboard workstations and various types of integrated audio mixer/recorders) are generally easy to use and require minimal maintenance, troubleshooting, and expense. If you are likely to keep doing the same thing in essentially the same way, this type of system might be an excellent choice. On the other hand, an "all in one" system is relatively inflexible by definition.

As noted earlier, a well-integrated studio is, for practical purposes, one machine. As with many machines, depending on how you design it, you might be able to reshuffle its components, changing its structural type. In many cases you can even absorb it, as an integral part, into a larger studio. Following that line of thought, if you expect your needs to change any time soon, your studio should have the ability to admit new links between gear you don't even have yet. The continuity of the studio's structure should not be destroyed when you change parts, forcing you to dump central pieces. Component systems are generally much more flexible than all-in-one systems in this scenario.

Remember that no change occurs in isolation; each part in a system is linked to other parts. If you expect that your studio will change, you need to design a system of components that ideally have multiple uses, are expandable, and have an assortment of connections.

Rapid change promotes problems, though, so make changes in increments. In addition, you will save money, frustration, and time if you can build on what exists. If old, familiar gear is still in good shape, why not keep it in service, perhaps in a different role? In addition,

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it's easier to remain productive if you don't try to completely reinvent your work habits overnight.

COMPATIBILITY AND CONNECTIVITY

As you consider various components, analyze the relationships you will set up among them. Before buying a new mic or mic preamp, test how the mics and mic preamps under consideration interact. Think about which synths complement each other sonically for your purposes. Determine whether the software and audio card you want to use are compatible.

Beware of mixing gear that operates at different audio levels (e.g., +4 dBu and -10 dBV) or that uses incompatible types of I/O. Make sure your cables and connectors are of high quality and are appropriate to their intended uses. (Good cables make more difference than you might imagine.) Where you must mix and match, be sure to use the proper adapters and format converters. Sometimes you may be forced to improvise here, but then you risk degrading the audio quality. Keep your cable runs short wherever possible. (This is especially important with audio, SCSI, and video-monitor cables.)

ERGONOMICS

An important and often overlooked issue is where you will locate everything to achieve optimal ergonomic and sonic results. It's crucial to design a comfortable working environment, or you won't want to work there.

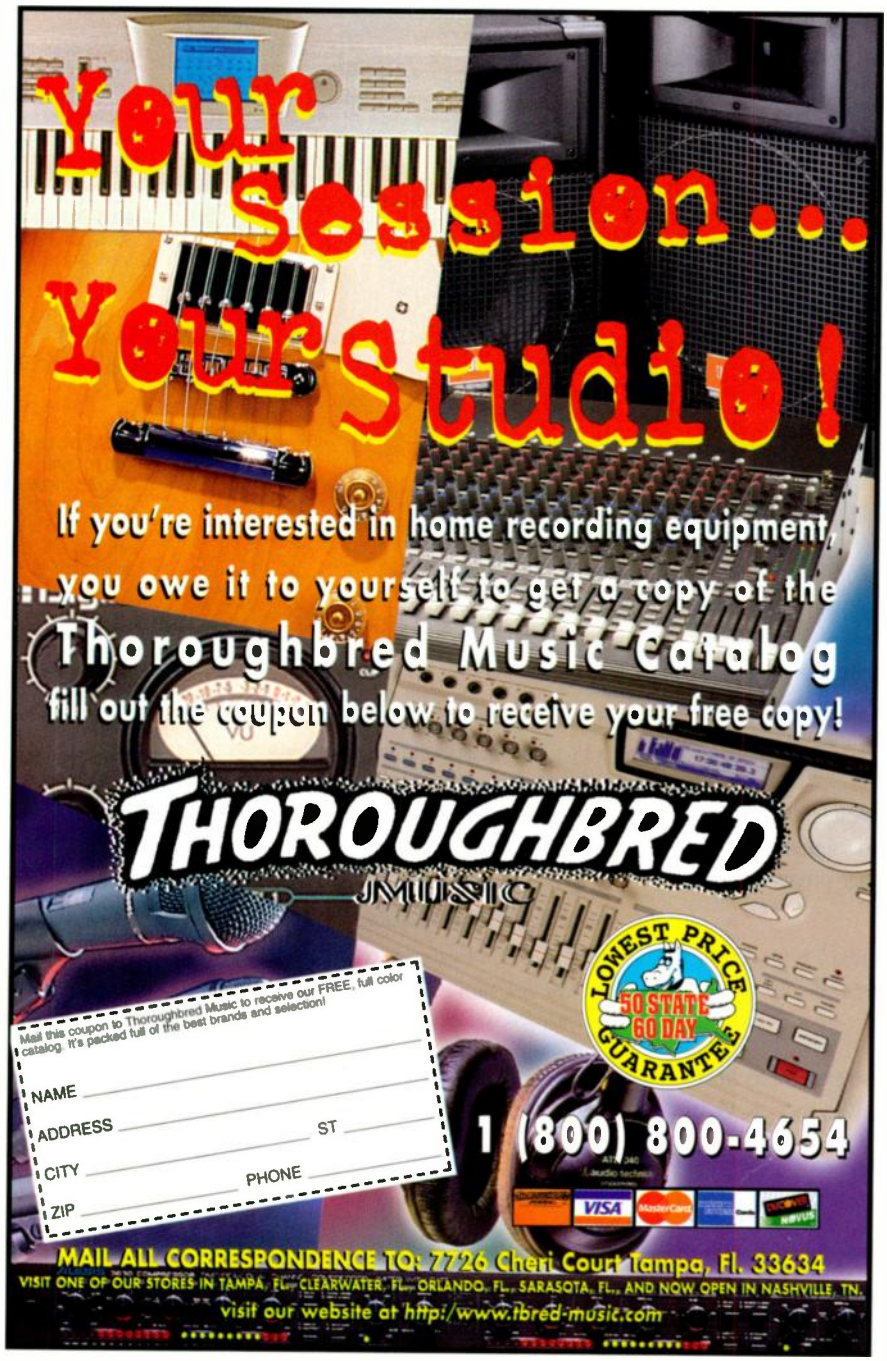
For instance, my system is complex, but the gear is strategically placed, and it is tightly integrated via MIDI control (including fader box, MIDI keyboards, custom XYZ pad, and two networked MIDI patch bays). I've moved the noisy gear to an equipment closet, and I can control pretty much everything without leaving my chair and while remaining in the monitor speakers' sweet spot. I feel comfortable in my studio's control area; in fact, I only wish I had more time to spend there.

WHAT'S THE PLAN, MAN?

By now, hopefully, you get the point: to design a studio you can use productively and want to use, you should look at the big picture and plan in advance at many levels. The structural-functional method I've presented isn't a magic solution, but it can provide a useful framework for designing a studio or live-performance system. (For that matter, the same principles apply to planning an album or a mix.)

The *Personal Studio Buyer's Guide* is an excellent tool for planning your studio purchases. Just keep in mind, as you read through its tables of features and specs, that as important is it is to choose the right tools for the job, success is far more likely when you configure and use them properly.

Electronic Musician Editor Steve O spent much of his life performing on tour, playing sessions, mixing sound, building bands, and generally acting like a keyboard player. Somehow he earned an anthropology degree along the way. After ten years at EM, he appears to have finally settled down.



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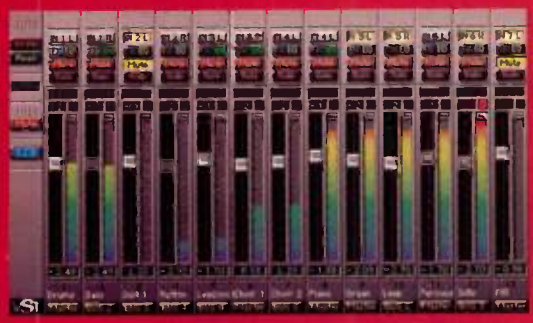

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By Brian Knave

Patch Bay Primer

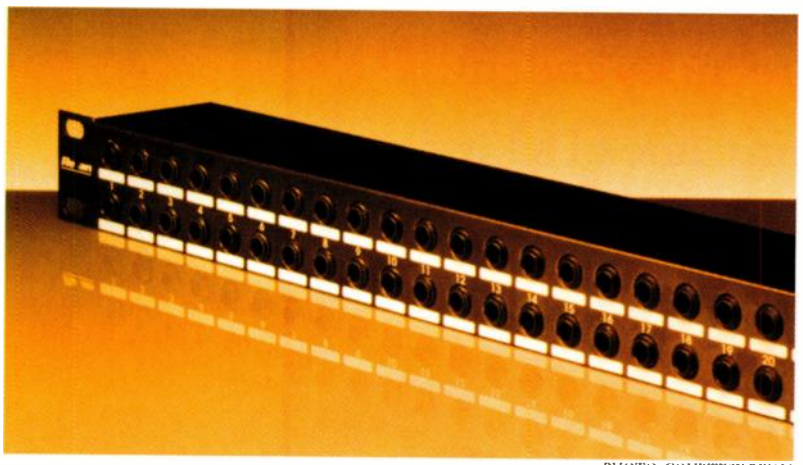


PHOTO: COURTESY RE'AN

This seemingly simple device keeps patching problems at bay.

For a piece of gear with no knobs, faders, MIDI control, or even an on/off switch, the audio patch bay sure causes its share of confusion! But there's no reason to let confusion reign. By getting a handle on the options that patch bays have to offer—and then simply thinking in terms of signal flow—you can master the ins and outs of this very useful device.

The purpose of a patch bay is to ergonomically simplify a studio so that all (or most) audio connections can be accessed and rerouted from a single, easy-to-reach location. Once the patch bay is set up, you should no longer have to crawl around behind gear to change cables. This not only leaves more time for making music, but it may also inspire you to experiment with alternate ways of hooking things up—which in turn can lead to interesting new sounds. Furthermore, by providing extra points of entry into the signal flow, a patch bay can extend the functionality of your gear.

Much of the confusion about patch bays stems from the fact that there is no single "correct" way to configure one. The whole point of a patch bay, after all, is convenience—and because every studio is different, what is convenient for one might prove inconvenient for another. The idea, then, is to set up the bay to accommodate the gear you have and the way you most often work. Certain connections are pretty standard—for example, patching the console's main stereo outputs into the inputs of a 2-track mixdown deck. The possibilities, however, are endless. (For more information than can be offered here about patch-bay use, refer to "Square One: Patch Me Through" and "Recording Musician: Patch-Bay Profiles" in the September 1995 and June 1996 issues of EM, respectively.)

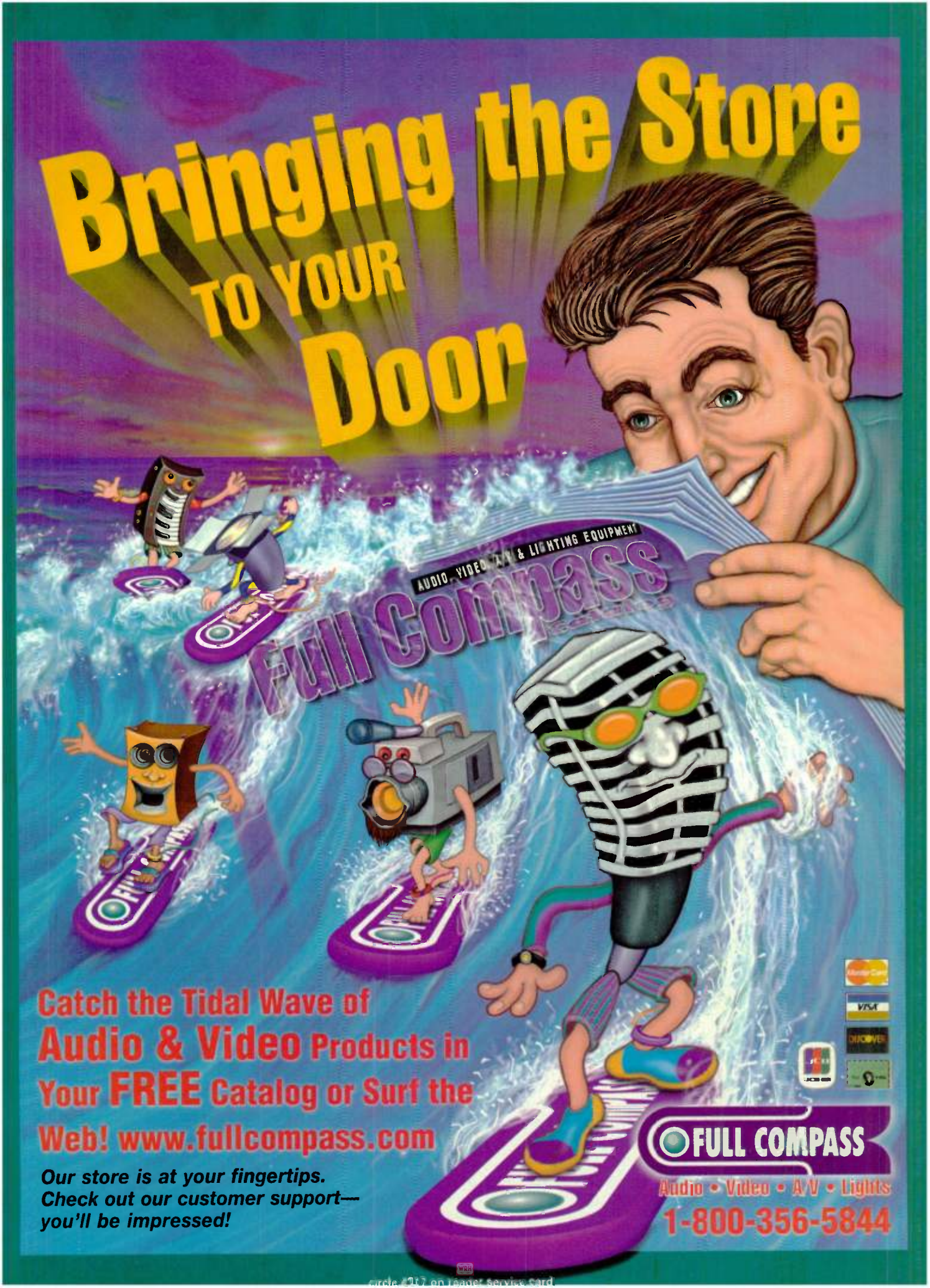
JACK TYPES

Three different types of jacks are commonly used in audio patch bays: RCA, ¼-inch, and TT (Tiny Telephone). For the personal studio, RCA and ¼-inch patch bays are most common. Commercial studios, however, typically employ TT patch bays, which conserve space by allowing for up to 48 jacks in a standard rack-size row (as opposed to 20 or 24 for RCA and ¼-inch patch bays).

Also available are patch bays that provide (on the rear panel) a mix of RCA and ¼-inch jacks, to accommodate studios using gear with both types of I/O. However, it's generally best, where applicable, to use ¼-inch, 3-conductor (tip-ring-sleeve, or TRS) patch bays because they allow you to connect either 2- or 3-conductor cables without problems.

WHAT'S NORMAL?

The first thing to understand about patch bays is the direction of signal flow. Remember: outputs are on the top of the patch bay and inputs are on the bottom.



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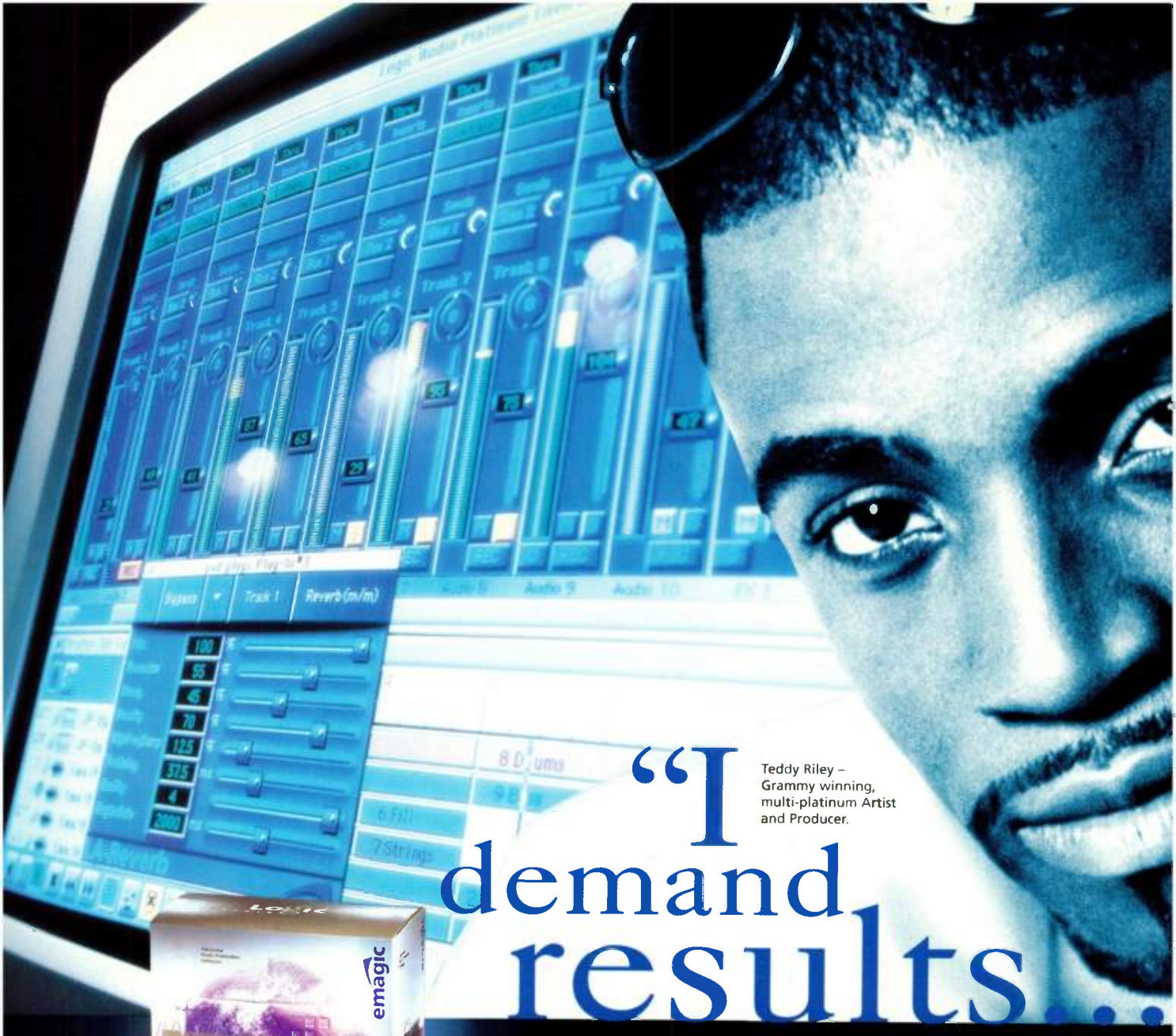

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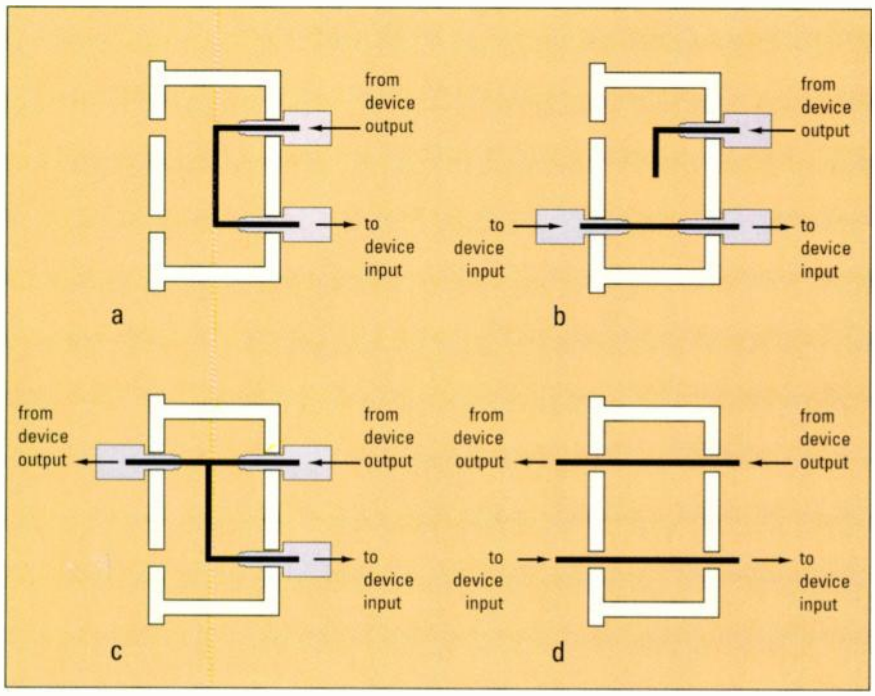


FIG. 1: These diagrams illustrate signal flow in normaled (a, b), half-normaled (c), and denormaled (d) patch bays. In a normaled configuration, the rear-panel jacks are internally connected as long as the front-panel jacks are unused (a). When patch cables are inserted into the lower front-panel jack, however, the normal connection is broken (b). A half-normaled configuration splits the incoming rear-panel signal to both the rear- and front-panel outputs (c). In a denormaled setup, the upper and lower jacks are internally disconnected.

That is, you connect outputs of gear into the top row of rear-panel jacks and inputs into the bottom row.

The next thing to understand is the three different types of signal-flow options that patch bays typically provide: normaled, half-normaled, and denormaled. A normaled patch connection (see **Fig. 1a**) passes a signal appearing at a top rear-panel jack directly to the jack beneath it—without the need for a patch cable connecting the front-panel jacks. Let's take the previously mentioned example of patching your console's main stereo outputs into the inputs of your 2-track mixdown deck via a patch bay. The connection is easy to make: simply run two cables from the console's stereo outputs (left and right) into two rear-panel, top-row jacks on the patch bay. Next, connect two more cables from the patch bay's bottom-row jacks (the ones directly beneath the other two) and send them to the inputs of the mixdown deck.

The console and mixdown deck are now "normaled" together through the patch bay (i.e., assuming the specified patch points are in normaled or half-normaled mode). In other words, the signal flows freely from the console's outputs through the patch bay and into the mixdown deck's inputs. In addition, the patch bay allows you to "break" the normal by simply patching into either the top or bottom two front-panel jacks. For example, you could patch into the top-row jacks to send the console's output signals elsewhere, or you could patch into the bottom row to send different signals to the mixdown deck. You could even do both simultaneously. But either way, you temporarily break the normal connection (see **Fig. 1b**).

A patch bay in half-normaled mode functions similarly, allowing the signal to flow unimpeded from output to input (top to bottom). However, a half-normaled setup also provides the option of breaking the normal partially, or "halfway." For instance (using the same example), by patching cables into the top two front-panel jacks, you could send the console's output signals to both the mixdown deck and to another destination of your choice (see **Fig. 1c**). In this case, you are splitting the signal and sending it to two different places—an application commonly called multing. On the other hand, if you patch two cables into the bottom front-panel jacks (inputs), you again break the normal, but this time, only the new signals are sent to the mixdown deck.

In a denormaled patch-bay setup, the upper and lower jacks are not internally connected (see **Fig. 1d**), so the signal does not "normally" flow through. In other words, to make a connection, you have to physically connect the two points (output and input) with a patch cable.

STEP ONE

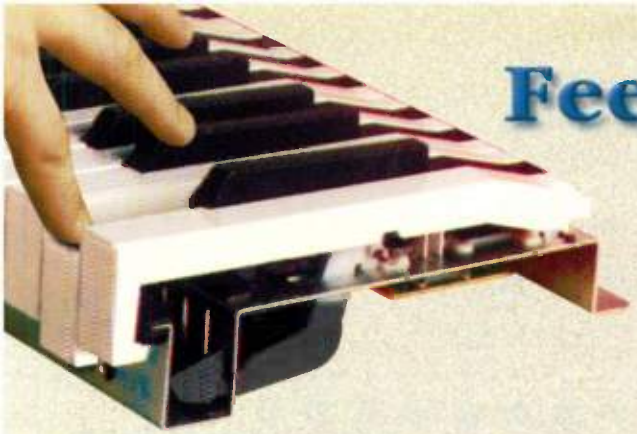
There are two basic steps to configuring a patch bay. The first is determining which devices to route through the bay. In commercial studios, virtually every input and output in the studio goes through the patch bay. This allows for maximum convenience and versatility for guest engineers.

In the typical personal studio, however, where a single operator usually runs the whole show, this approach is probably excessive—not to mention expensive. (Apart from the cost of the patch bay itself, each piece of gear routed through a patch bay requires twice the usual number of cables.) Instead, you should determine which devices would benefit most from the convenience and increased options that patch bays provide—and which can do without. Ultimately, these decisions must be based on your style of producing music.

STEP TWO

The second step is determining which devices to normal or half-normal and which to denormal. (Nowadays, the half-normaled bay, with its increased functionality, has pretty much replaced the normaled bay.)

Commercial studios often favor denormaled patch bays so visiting engineers can readily customize connections. However, a fully denormaled patch bay, while providing maximum flexibility, takes more time and thought to use because nothing is already connected. In



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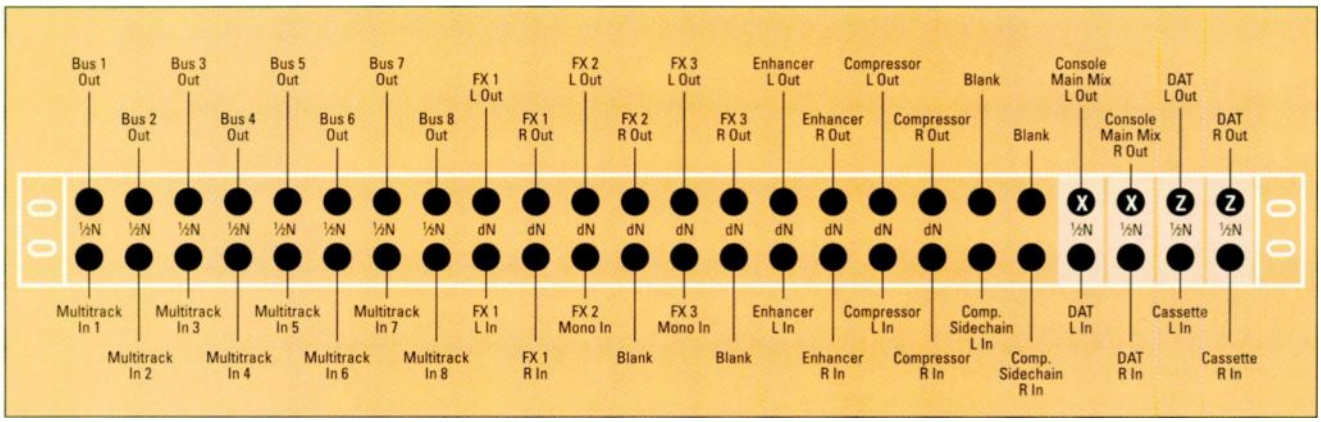


FIG. 2: This sample patch bay provides direct-to-tape recording access; ins and outs for three effects units (one with stereo sends and two with mono), one stereo enhancer, and one stereo compressor; sidechain access to the compressor; and connections for recording the console main mix to DAT and the DAT mix to cassette. The X cables mult the console main mix to a secondary monitoring system, and the Z cables mult the DAT mix to the console's 2-track inputs. (Note that in this setup, it doesn't matter whether the jacks to the compressor's sidechain inputs are normaled, half-normaled, or denormaled, because the corresponding output jacks are not being used.)

other words, before recording or mixing, its first necessary to patch together all the gear you'll be using. Obviously, this can prove cumbersome and time-consuming.

The more sensible approach for the personal studio is to determine the studio's "normal" setup. Finding the optimal arrangement usually requires some trial and error, but once you've established what's normal, the patch bay allows you to "permanentize" that arrangement. Thereafter, you can easily deviate from the norm by inserting patch cables.

HALF-NORMALED

Good candidates for half-normaled connections are any that connect the outputs of one device to the inputs of another and for which multiple I/O access is convenient. For example, in my normal setup, the console's stereo outputs are half-normaled to my DAT recorder, my DAT recorder is half-normaled to my primary cassette deck, and my primary cassette deck is half-normaled to a secondary cassette deck.

This arrangement offers several options. For example, I can print a DAT mix and simultaneously dub two cassette copies of the same mix. Also, I can readily patch my CD player (which is also connected to the patch bay) into either cassette deck or into the DAT. Furthermore, I can keep my DAT outputs multed to the console's 2-track inputs and the console's stereo outputs multed to a nearby boom box which I use as a secondary monitoring system.

Another very useful place for half-normaled connections is between the console tape sends (or bus outputs) and the inputs to the multitrack recorder(s) (see **Fig. 2**). This setup allows for easy direct-to-tape recording as well as sending channel or subgroup outputs to another recorder.

DENORMALED

Denormaled patch points are good for any outboard gear that you might want to reroute in the course of production, for example, effects and dynamics processors. Moreover, once these devices are configured in denormaled mode, you can still have a "normal" setup simply by inserting the appropriate cables into the front of the patch bay.

For example, I have my best stereo compressor denormaled to a patch bay. During tracking or mixing, I can access the compressor via standard Y-insert cables. However, if I want to run an instrument—or a whole mix—through the compressor, I can easily remove the Y-cables and patch in. (I don't find it necessary to have all of my compressors go through a patch bay; the rest have Y-cables "permanently" connected directly to their rear panels.)

PATCH 22

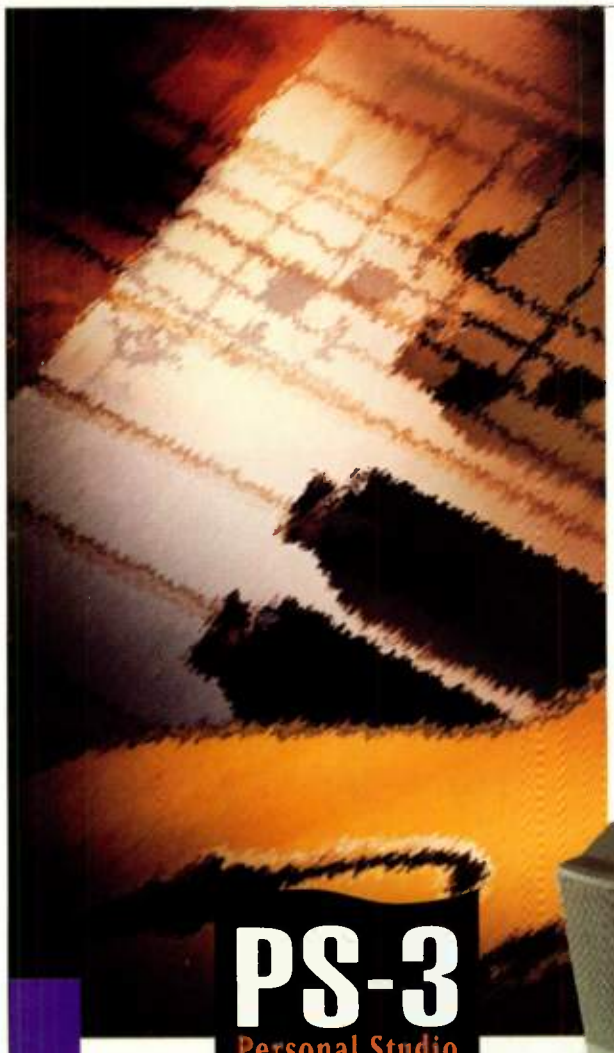
It's impossible in a short article, of course, to catalog very many of the countless possible patch-bay configurations. To get you started, however, we've provided a drawing of a sample setup (see **Fig. 2**) that should prove applicable to many personal-studio setups.

Like studios in general, patch bays are usually works in progress. As you get familiar with using patch bays, don't hesitate to experiment with different configurations until you find the normal setup that works best for you.

Brian Knave is Associate Editor at Electronic Musician.

A CHANGE FROM NORMAL

How do you change a patch-bay connection from normaled or half-normaled to de-normaled? Depending on the make and model of patch bay, this usually requires removing the circuit board (typically an individual card for each top/bottom set of jacks) and forcibly breaking a designated contact by scratching through it with a knife or screwdriver. Some patch bays (see opening photo) offer patch points on easily removable, reversible cards. To change from half-normaled to denormaled (or vice-versa), you simply remove, reverse, and replace the card.



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By Erik Lovell

The Word on Clocks

What to do when your synchin' is stinkin'.

When your digital audio system's timing is out of whack, the problem often turns out to be *synchronization*. Several types of synchronization (or "sync") are commonly in use in the personal studio, including MIDI, SMPTE, black burst, and word clock, just to name a few.

Studios with a lot of digital audio gear are especially susceptible to sync problems, and it can be difficult to figure them out. As a first step toward understanding the source of these problems, I'm going to introduce you to what's really making your digital audio tick: the digital audio clock.

MASTER THE CLOCK

Let's start with the basics. Every digital device needs a timing-reference signal, often called a *clock*, in order to trigger its internal operations. When several clock sources are available, you must select one to serve as a master clock.

There are many ways to generate a master clock. One of them is to use a device's internal *crystal*, which is an electronic component made from a piece of quartz crystal. Because it is a stable and accurate frequency generator, the crystal is used in many electronic devices (such as wrist watches) to generate a timing reference.

Another way to get a master clock is to recover it from the digital audio signal itself. A digital audio signal carries its own clock signal, and you can often set a device to "lock" (synchronize tightly) to this clock and ignore its internal crystal.

WHAT'S THE WORD?

Yet another way to set a master clock is to use a *word clock*. The word clock is a square-wave signal that is transmitted via a 75Ω BNC connector. A square wave, of course, alternates between high and low states, which makes it ideal as a timing reference. Because many devices can

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"I have a rather portable computer with an LCD screen and stripped-down Windows 95. I run Cakewalk™ with Reality. Cakewalk can loop, so when I do live shows, I have it loop and I mix live by muting and un-muting parts of the song, using Reality as the synthesizer.

"Reality is very straightforward. Having had even minor experience with other synthesizers, you pretty much know what everything is. The filters are really responsive—that's another good thing. You can get the resonance up real high. I use Reality primarily as a sampler, just because it works so well that way. I use a set of MIDI sliders with it.

"Recently I have been getting into making a lot of weird atonal sounds, pushing the FM stuff as far as it will go. You can get some really insane sounds out of that. The frequency response with [Reality] allows you to do stuff that is pretty complicated and textured, but still sounds good.

"With a lot of the digital synths, when you try and do a hefty bass, you don't get it. I have never run into that with Reality—I've been able to get really enormous bass sounds.

"At shows, I let people see what's going on. A lot of people are into break beats and they sound a lot more complex than they really are, so they want to see how I'm doing it. Having it on the computer screen, you can see everything. You get to see where everything is. It also makes it much easier to manipulate it, set the different sliders to different things. When you're dealing with Reality, it's all sitting right there."

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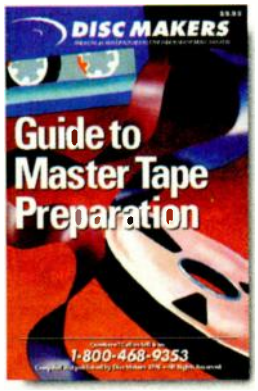

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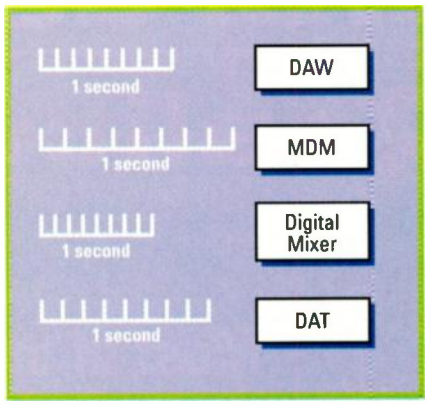

FIG. 1: Number of clock pulses in one second with and without a common word-clock source

use word-clock signals as their master timing reference, it has become a standard type of digital audio system clock.

As you add more digital devices to your studio, you're also adding more digital clocks, which is where most of the problems begin. You record your audio using one device that's using its crystal as a master clock, and then you try to send that signal into another device that's using its own crystal as the master. If you've ever heard a click or a pop in your audio, this is most likely the culprit. Even if both devices are running at 44.1 kHz, you're still going to get clicks because two crystals, no matter how accurate, will never be exactly the same. The clicks are audio samples being lost or skipped because there are two different clocks in the system (see **Fig. 1**).

Most professional digital audio devices have a word-clock input so they can work in sync with other devices in the studio. Some DATs and other gear lack word-clock inputs, though, which makes it a whole lot harder to rid your studio of clocking problems. For now, let's assume that all of your digital audio devices that require synchronization have word-clock inputs.

Next, you need to invest in a quality master-clock generator to be the master clock for all your digital devices. The ideal way to sync a digital studio is with a low-jitter master-clock generator that connects a discrete clock output to each digital audio device. This helps tremendously in reducing the jitter in your studio, as well. (For an explanation of jitter and how to deal with it, see "Immaculate Audio" in the November 1997 issue of *Electronic Musician*.) If each device is getting it's own clock from the same low jitter source, then only audio data is being transferred between the two devices, and reclocking jitter does not occur. This completely eliminates any chance for sync problems and also does away with any jitter that might be picked up along the audio cable.

To set up the sync system, simply connect a separate word-clock output to the word-clock input on each of your devices so all devices are referencing the same clock (see **Fig. 2**). Make sure to set each device to slave off of the external word clock; if they're smart, the devices will lock to it automatically.

Video facilities use a *house sync* generator that generates video black-burst sync signals and connects to every room and every video device in the facility.

Studios with a lot of digital audio gear are especially susceptible to sync problems.

(For more on SMPTE, black burst, and other types of sync, see "That Synching Feeling" in the October 1996 EM.) If you already have a video house-sync generator, then you need to get a digital audio master-clock generator that will reference video black burst. This guar-

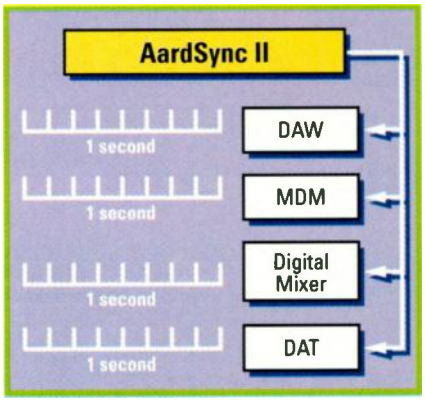

FIG. 2: A typical word-clock distribution arrangement

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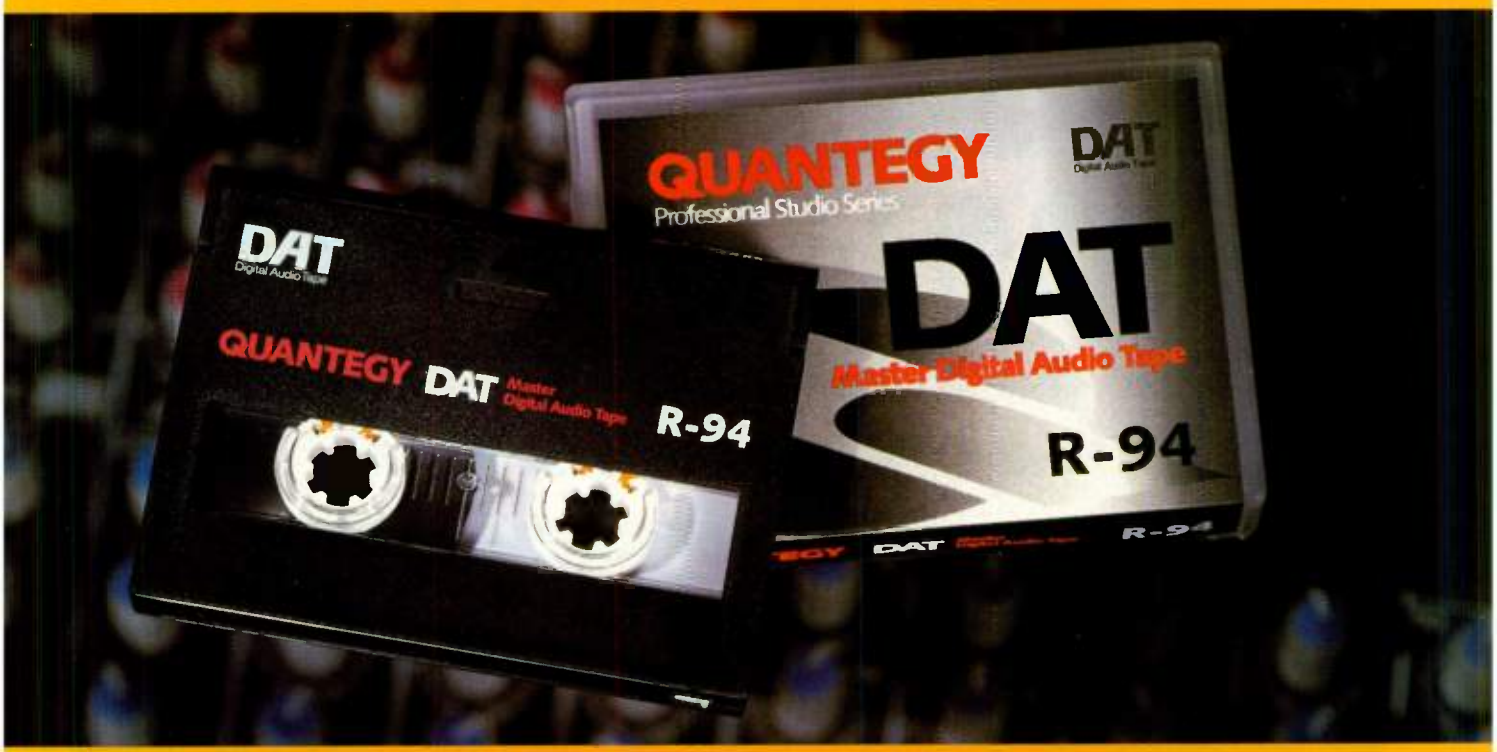

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antees that all your digital audio and video will be locked to one common clock, the most ideal solution.

There are a few rules regarding using word clock that most engineers do not know. The most important is to watch

> As you add more digital devices to your studio, you're also adding more digital clocks.

the cable length of the clock signal. The word-clock signal was originally designed to be transferred through a circuit board, not over a long coaxial cable. You shouldn't have a problem as long as you keep your word-clock cable length under fifteen feet, but anything longer will lead to reflections in the cable, which may cause loss of sync, dropouts, and increased jitter in the digital audio. This jitter can result in cloudiness, a loss of stereo imaging, and lost detail and clarity in the high audio frequencies. You must also use a good-quality, 75Ω coax cable; usually a thick video cable works the best.

SPREADING THE WORD

Another important consideration with word clock is the way it's distributed around the studio. It's not good to "tee-off" a word clock from one device to the next, because of voltage considerations at the input of the word clock. Each word-clock input contains a 75Ω resistor that is needed to properly terminate the cable impedance. If one word-clock source is connected to several inputs, the word-clock signal will be loaded down too much and will not have enough juice to go around.

A good word-clock distribution amp (DA) solves that problem. But be aware that you cannot use a video distribution amp to distribute word clock. Many people think that because the video signal and the word-clock signal have the same BNC connector and cable type, word clock can be distributed by a video distribution amp. Video DAs are made to work with video signal levels, which are typically 1 Vpp, whereas a typical word-clock signal runs into the 3.5 Vpp range. Because of word clock's higher voltage and current requirements, a video DA cannot properly distribute word clock. In addition, the DC restoration circuits used in a video DA can change the word-clock polarity from positive to negative. The word-clock input circuits are not designed to work with negative voltage levels, and the DC restoration can actually damage your digital audio equipment.

SUPERCLOCH

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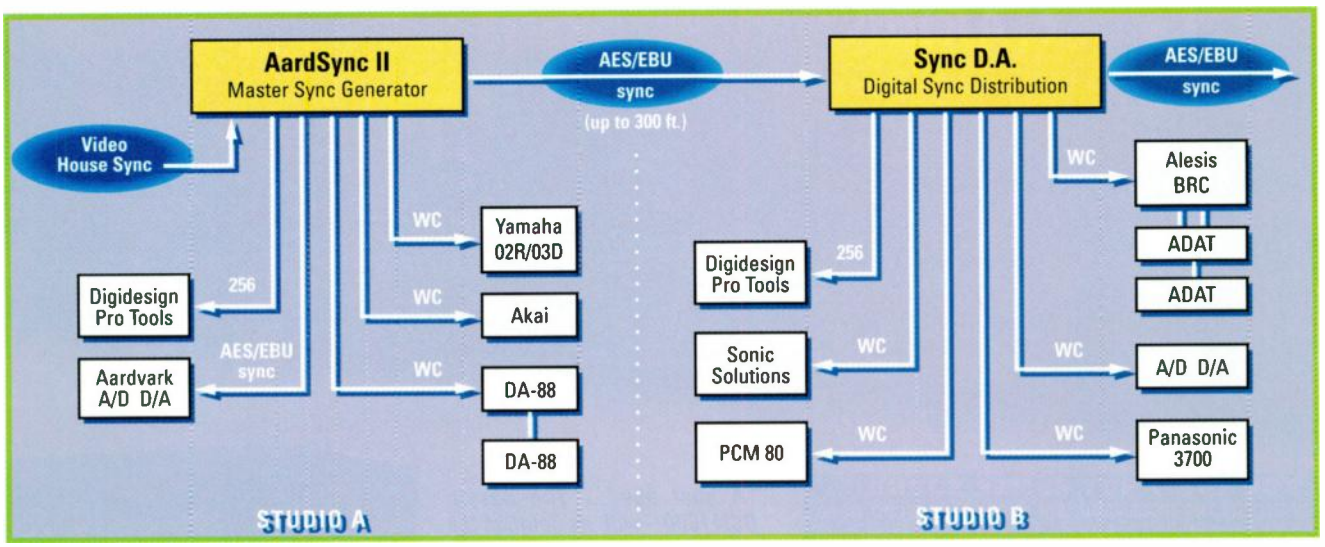

FIG. 3: A typical master sync distribution setup

clocking equation. They are synchronized by a Superclock input, which accomplishes the same thing as word clock but in a different format. The Superclock is a 256× oversampling of the normal word clock. The only difference is that you need a generator that specifically generates Superclock. One aspect of using Superclock is that cable length must be a lot shorter: Digidesign recommends you use cable runs of less than two feet from the generator to the digital audio workstation. This usually mandates that the master-clock generator be placed in the same rack as the Pro Tools I/O boxes.

Another important consideration with word clock is the way it's distributed around the studio.

As I mentioned earlier, the standard AES/EBU digital audio signal inherently carries its clock along with the audio data. So why not just use it as a way to get clocks around the studio? The most obvious reason is that many devices do not have more than one AES/EBU input. More important, when the clock is carried along with actual audio data, the clock is a bit more jittery than when all the audio bits are 0, which is called *digital silence* or *AES/EBU black*. The one big advantage of AES/EBU digital audio buses is that they're terminated at both the transmitting and the receiving end. This double termination allows the signal to be transmitted over several hundred feet with minimal jitter problems.

BRING IT TOGETHER

Let's take a typical setup (**Fig. 3**) with Pro Tools and an 888 I/O, two ADATs with a BRC, Apogee AD-1000 digital-to-analog converters, a Yamaha 02R digital mixer, and Aardvark's AardSync II low-jitter master clock generator. (I admit that's a shameless plug; I work at Aardvark.) Connect an word-clock output from the AardSync to the 02R, another to the Apogee AD-1000, and one to the BRC (which will sync the ADATs). Make sure your cable lengths are under fifteen feet, and set each device to lock to external word clock.

You'll have to place the master-clock generator right next to the 888 because you can only take the Superclock a few feet. So connect the Superclock out to the Slave In port on the 888 I/O. Pick a sample rate (commonly 44.1 kHz or 48 kHz) on the master generator, and you should be up and running with a very low-jitter, problem-free studio. If you need to use SMPTE time code, just make sure that the SMPTE source is locked either to video or to word clock. If you're using a Mark of the Unicorn MIDI Timepiece, then just take the video black out of the AardSync II and connect it to the video in of the MIDI Timepiece. Everything will be in sample-accurate sync.

What if you need to get the same word clock into the next room, so that you have to go farther than fifteen feet? As mentioned earlier, an AES/EBU signal is an excellent source of clock if there's no audio data in it, and it can go several hundred feet. You can run the AES/EBU signal into the next room and connect it to a device such as Aardvark's Sync D.A., which will reference the signal's clock and then distribute it to five low-jitter word-clock outputs and one Superclock output for another Pro Tools system.

There are many other problems with keeping the audio and the video locked together, but those are usually much easier to figure out. Digital audio can be a complicated issue if you don't know what to look out for. But once you really understand digital audio and know a few common rules about the different kinds of clocks and their idiosyncrasies, many of the common digital audio problems are easily avoided.

Erik Lovell is VP of Marketing and Product Development at Aardvark. **Special thanks to Igor Levin for clarifying many technical issues.**

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By Steve Oppenheimer

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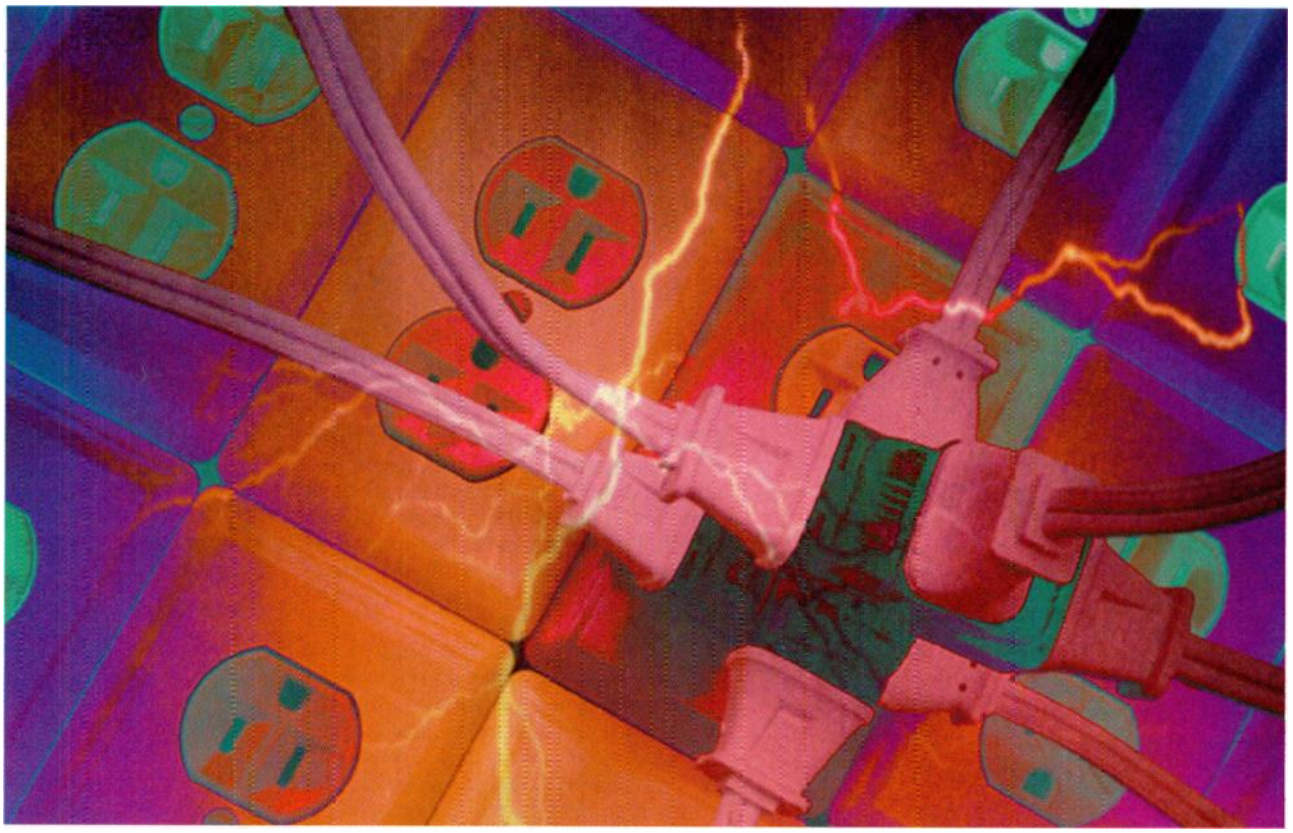

How to choose and use an AC power conditioner.

Powering your studio gear directly from an unprotected AC outlet is like running a fine car without fuel and air filters: it's courting disaster. So many things can go wrong—especially with sensitive digital circuits—that we can only discuss them superficially here, but the bottom line is that you can and should protect your equipment with power conditioners. But not all power conditioners are created equal; let's take a look at the key problems and solutions.

HASH IS TRASH

Radio-frequency interference (RFI) and electromagnetic interference (EMI) can be caused by electrical appliances, radio transmitters (including cell phones), fluorescent lights, DC switching power supplies, AC cables, computer monitors, televisions, and a host of other sources. Basically, this is high-frequency interference (say, above 10 kHz) that can travel through power lines, through the air, or through various cables in the studio. To put it mildly, this electronic hash can really trash your studio.

Digital circuits, in particular, suffer badly from these various forms of hash. So do audio signals, even when traveling through well-insulated cables. Eliminating this entire mess is a complex art that is beyond the scope of this article. But using a power conditioner to reduce RFI and EMI in the AC power system is relatively simple and a good place to start.

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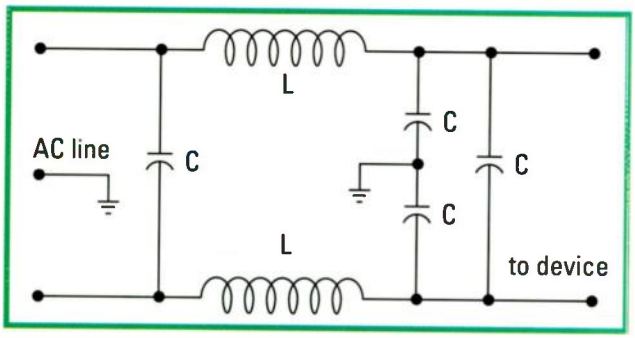

FIG. 1: This simple lowpass filter uses capacitors to shunt frequencies above 60 Hz to ground, filtering out high-frequency RFI and EMI.

two approaches to filtering out RFI and EMI. The simplest filter uses one or more capacitors between the power buses and ground (see **Fig. 1**). A more effective approach is to use a multistage lowpass filter. In either case, the cutoff frequency is set above 60 Hz. These filters shunt the high-frequency interference to ground, providing a clean sine-wave power signal.

The down side is that this method can generate extraneous currents in the system ground. Engineers disagree about the seriousness of this problem, but thanks to a new approach to AC power systems, it can be dealt with fairly simply.

BALANCED THINKING

Balanced power is a relatively new solution to AC hash problems. With this approach, the hot and neutral wires from a balanced power supply each carry a power signal of 60 VAC instead of 120 and 0 VAC. The total is still 120 VAC, but the signals are 180 degrees out of phase with respect to each other, so any current in the ground (such as that caused by a line filter) is canceled out.

To top it off, the EMI radiated from the two conductors gets canceled out. This is especially great in the studio because it eliminates noise that might otherwise get into the audio signal when power cords are adjacent to audio cables.

SURGES, SPIKES, AND SAGS

Power grids are complex beasts, and the demands placed on them vary constantly. Such problems as a nearby lightning strike, unusual levels of demand (say, when everyone in the area turns on their air conditioning due to a heat wave), or a problem at a power station can cause the system's power to fluctuate. You are more likely to experience these fluctuations the further you live from a power substation or plant.

If the demand on your local power utility suddenly drops, a temporary overvoltage condition, or power surge, can result. Conversely, a sudden increase in demand can cause an undervoltage condition, or sag. In addition, power companies in high-demand areas often avert larger problems by intentionally creating brown-outs (voltage reductions of 5 to 15 percent) within a specified area. The power utility eventually compensates for the change, but in the meantime, your gear's performance can be affected, and some equipment could be permanently damaged.

A spike is a sudden, extreme increase in voltage that immediately subsides. Whereas a surge can last for a few hundred milliseconds or more, a spike hits quickly, lasts approximately 100 microseconds or less, and then is gone. But it can hit very hard. A lightning strike somewhere in the utility network (not necessarily a direct hit) could easily cause a 5,000-volt spike. Even if your gear is not immediately fried, components could be damaged to the point that they will fail soon thereafter.

Sometimes a voltage fluctuation can be caused within your building or neighborhood. For instance, motors require extra current to get started, and when a refrigerator or air conditioner switches on it can cause a brief sag of as much as 20 percent. The sag might only last a few hundred milliseconds, but that's enough to cause damage. When a transformer or large motor—say, a vacuum cleaner—is turned off, a significant spike can result. If you want your precious studio electronics to last, you need to protect them against these electrical horrors.

COST-EFFECTIVE SOLUTIONS

Many power strips and all of the power conditioners listed in the *Personal Studio Buyer's Guide* contain some form of surge and spike protection. Probably the most common and inexpensive way to accomplish this is a metal-oxide varistor (MOV), which is a voltage-clamping device. If you know what you're doing, you can even buy these devices at electrical parts houses and catalogs and install them into your existing power strips. Some inexpensive units use one MOV but the better units use as many as three (see **Fig. 2**).

Below the threshold voltage, the MOV is an open circuit. But if the voltage exceeds the threshold, the device conducts and absorbs the transient, releasing the energy as heat. Typically, an MOV can respond quickly—say, within a few nanoseconds. That's enough to handle most surges and spikes.

The problem is that one good, stiff spike can demolish an MOV; if that happens, you are protected from that one spike, but thereafter your power strip or conditioner is unprotected, even

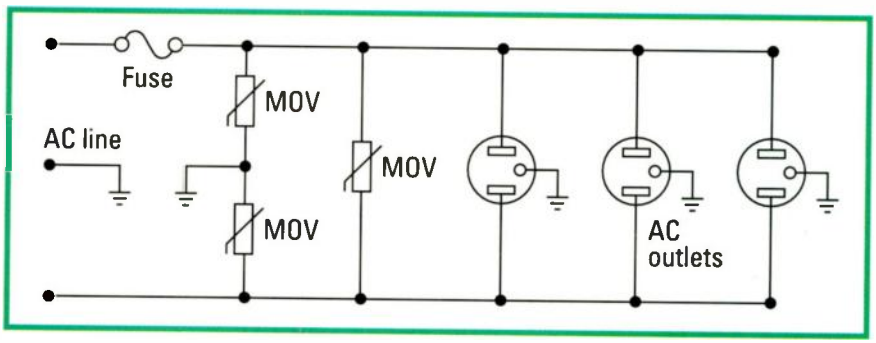

FIG. 2: Many line conditioners use three MOV voltage-clamping circuits, as shown in this AC outlet-box schematic. However, the lowest-end power strips and line conditioners often use only one MOV.

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though it still supplies power. Some power strips have indicator lights that go out if the MOV blows, but in many cases you won't have a clue that you are vulnerable. Furthermore, MOVs don't do anything to protect you from sags and are insufficient for handling extended overvoltages.

Therefore, I recommend using MOV-based power protection as a second line of defense. Install one of these relatively inexpensive units in each rack, but instead of plugging them directly into the wall outlet, plug them into a higher-end power conditioner that uses an isolation transformer and offers complete line regulation, rather than just surge and spike protection. We'll discuss these higher-end devices next.

FIRST LINE OF DEFENSE

Line regulators provide a professional solution to surges, spikes, and sags. These devices use constant-voltage isolation transformers that deliver a steady 117 or 120 VAC as long as the input voltage doesn't sag below a minimum tolerance (commonly 90V) or surge above the maximum (generally 130 to 140 VAC, but sometimes as high as 300V). With a well-designed unit, if the voltage drops or surges outside the tolerance range, an internal circuit breaker is tripped to shut everything down rather than expose your gear to damage. This kind of device should be your first line of defense.

With this type of protection, surges, sags, and spikes are virtually eliminated, regardless of the source. The usual tolerance range of 90V to 130V should be enough to handle the vast majority of problems; if a fluctuation is outside of this range, it's time to shut down the studio and wait for the power system to stabilize.

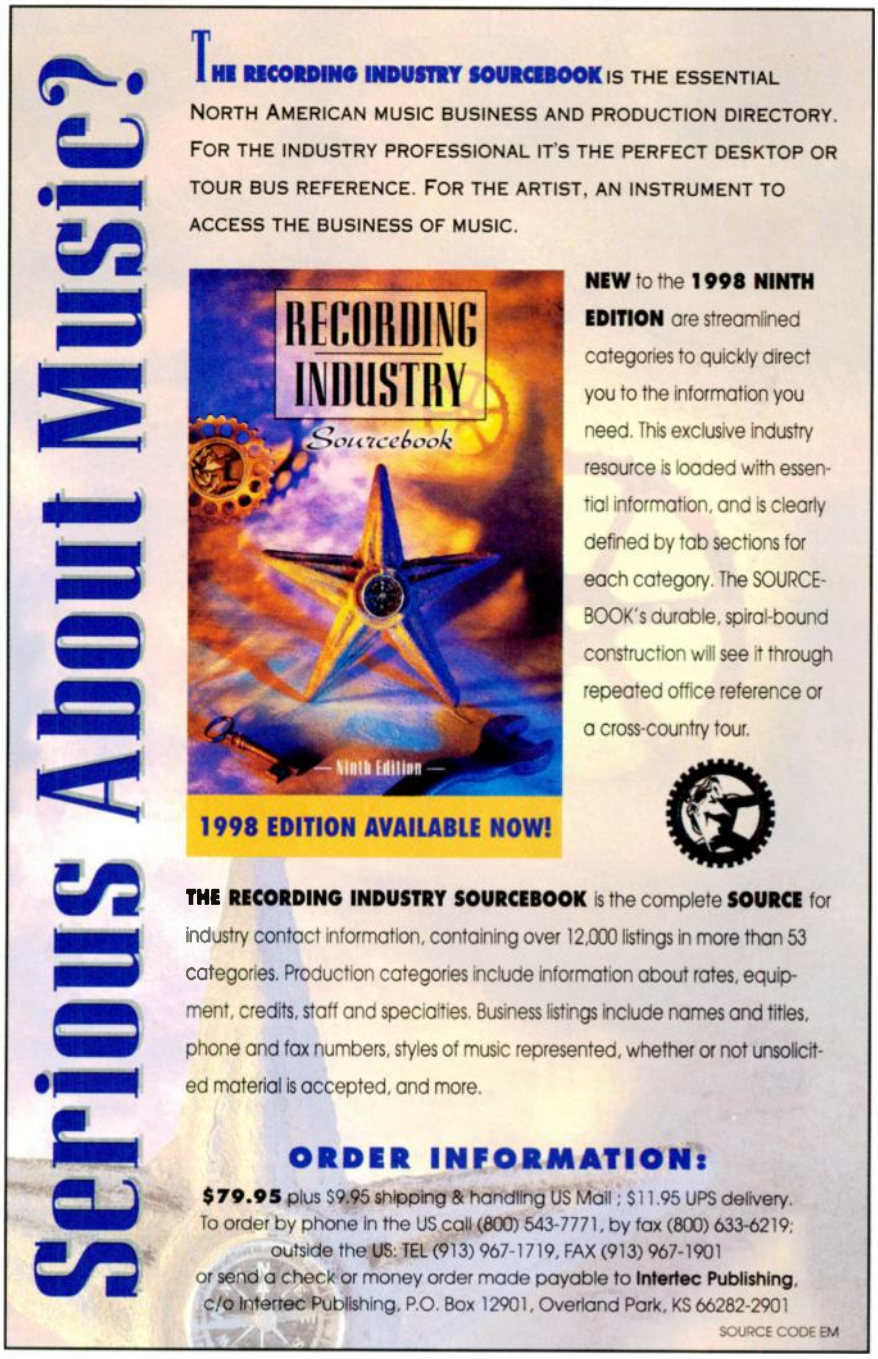
UPS DELIVERS THE GOODS

Line regulation works fine for most studio gear, but some equipment—especially computers—suffers if the power is suddenly cut off, whether due to a vigilant line regulator or a power-system blackout. As a result, I highly recommend that you protect your computer system with an uninterruptable power supply (UPS).

A UPS has a battery that takes over if the power drops too low or fails entirely. That gives you time to save your files and properly shut down your computer. (It's handy when you are editing on a RAM-based sampler or synth, too.) The amount of battery time depends on the UPS and the load you place on it, but most such units give you at least ten minutes.

Most uninterruptable power supplies have some form of surge and spike protection, but not all have line regulation. I strongly recommend you use a UPS that includes line regulation so that you are completely protected. (By the way, power spikes can be transferred through the telephone lines, frying your modem, so consider looking for a UPS that has phone-line protection, too.)

An important consideration is how quickly the UPS can detect a power failure and switch to the battery. The entire process should occur in less than 10 ms. Some systems also come with computer



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software that monitors the UPS and allows you to schedule power-saving computer shutdowns.

OTHER CONSIDERATIONS

A few other factors should be considered when buying a power conditioner/regulator. The most obvious is that the number of outlets varies. These outlets are rated for a given amount of power, so be sure to match the power requirements of your devices with the appropriate outlets.

In addition, most power conditioners are designed for 15A, 120 VAC circuits, but some heavy-duty units are designed for 30A, 220V systems. Always use the appropriate power conditioner for your AC circuit, and don't overload the system. (To ensure a proper load, add up the current ratings of all connected units and allow some headroom. Power amps and devices with motors, tubes, and fans tend to draw the most current.)

Many power conditioners offer input-voltage meters, which can be analog (LEDs) or digital (LCDs or neon displays). These are useful because they show you approximately what the power conditions are at any given time.

Another extra is onboard lights. Many units offer slide-out light tubes (which may be metal or plastic); some have BNC connectors that accept Littlelite gooseneck lamps. These can be very handy, especially for live performance situations.

Two other factors merit mention. First, the mechanical assembly of the unit should feel solid, not flimsy, and the paint and screened markings should last. Remember, you want this unit to last for years, and it might have to withstand the rigors of live performance.

Finally, as with anything else you buy, check the warranty. Obviously, the length of the warranty is a factor, as is the completeness of what is covered. It's also nice if the warranty is transferrable, so that a second-hand unit is still covered.

As you'll see from the charts on pp. 132-137, you have plenty of choices. As with everything else in your studio, it pays to carefully evaluate your needs and plan an entire, integrated AC power-distribution system that can protect your gear now and can expand to meet your future needs. ■

PATCHLINK® SP

LINKING YOUR AUDIO GEAR JUST GOT AS EASY AS...

1, 2, 3. PatchLink SP is the newest 1/4" jack modular patching system from Neutrik®. Designed to be versatile and easy to use, PatchLink SP eliminates much of the labor associated with changing the PC cards while completely protecting them from abuse or dust.

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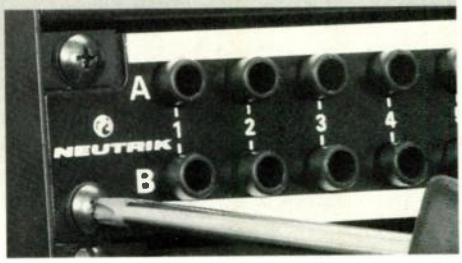
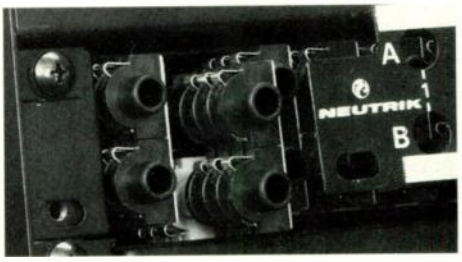
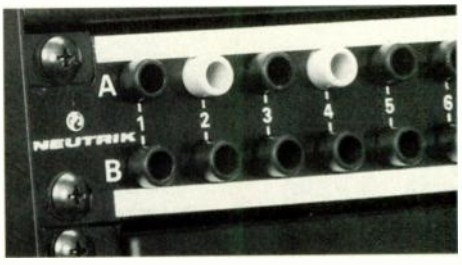


2. There are no nuts on the back holding the PC cards in place. Just pull the PC card out of its position, rotate and replace. It's that easy. Identification strips are on the front and back so you know the exact purpose for each position.



3. With each vertical front-to-back pair half-normalled to the other, multiple combinations (normalled, paralleled, etc...) for linking your audio gear are a snap. Jacks are color coded in black and grey eliminating any guessing after changes are made.



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AUDIO/SOUND CARDS

Manufacturer	Model	Analog I/O	S/PDIF I/O	AES/EBU I/O	Max Digital Transfer (bits)	Sampling Rates (kHz)	DACs/ADCs	Sync Types
Antex	StudioCard AV Pro	4 in, 4 out via 25-pin male D-sub or female XLR on breakout cable (included)	8 stereo pairs; EIAJ CP-340 Type II/IEC-958 female XLR on breakout cable (included)	1 I/O on female XLR; EIAJ CP-340 Type II/IEC-958 female XLR on breakout cable (included)	N/A	6.25–50	DACs: 18-bit, ADCs: 16-bit	SMPTE, MIDI, word clock, video pixel clock
Aardvark	Aark 20/20	8 in, 8 out (1/4")	1, electrical	Optional	24	32, 48, 44.1, plus external	20-bit	Word clock, video (optional)
AdB	MultiWav Digital PRO24	No analog input, 24-bit stereo analog output on 1/4" TRS jack	1 Stereo pair, Optical and Coaxial	1 Stereo Pair, TRS 1/4"	24	33, 44.1, 48	24-bit	Word clock, digital clock, internal
AdB	MultiWav PRO Analog 24	24-bit +4 balanced analog I/O on four 1/4" TRS jacks	None	None	24	33, 44.1, 48	24-bit	Word clock
Applied Magic	OnStage	2x2 XLR	2 stereo pairs XLR	2 stereo pairs XLR	20	4–50 1 kHz increments	20-bit	Video, LTC, VITC, MTC
Digigram	PCX 440np	4 in, 4 out (D-sub)	Two electrical ins and outs	Two electrical ins and outs	20	6–50 in 0.01 Hz steps	20-bit	None
Digigram	PCX Pocket	Stereo mic/line in (XLR), stereo out (V8")	None	None	16	8, 11.025, 16, 22.05, 24, 32, 44.1, 48	16-bit	None
Digigram	PCX Pocket AD	Stereo mic/line in (XLR), stereo out (V8")	Stereo electrical input only	None	20	8, 11.025, 16, 22.05, 24, 32, 44.1, 48	20-bit	None
Digital Audio Labs	CardD Plus	2in, 2out (gold-tipped) RCA	Optional	None	16	22.05, 32, 44.1, 48	DAC: 18-bit, ADC: 16-bit	N/A
E-mu Systems	Creation Studio	1/8" line in, 1/8" mic in stereo out (gold plated RCA)	S/PDIF out only	None	16 in, 20 out	11, 22, 44	20-bit	MIDI
Emagic	Audiowerk8	2 in, 8 out (RCA)	1 in, 1 out (electrical)	None	16	32–50	18-bit	Digital in
Event Electronics	Darla	2 in, 8 out (RCA)	None	None	N/A	8, 11, 22, 32, 44.1, 48	20-bit	None
Event Electronics	Gina	2 in, 8 (1/4")	1 in, 1 out (RCA)	None	24	8, 11, 22, 32, 44.1, 48	20-bit	S/PDIF clock
Event Electronics	Layla	8 in, 10 out (balanced 1/4" TRS)	1 in, 1 out (RCA)	None	24	8–50	20-bit	Word clock, Superclock, S/PDIF clock, MTC
Gadget Labs	Wave/4	4 in, 4 out (1/8", RCA)	None	None	16	11.025, 16, 22.05, 24, 32, 44.1, 48	DACs: 16 & 18-bit, ADCs: 16-bit	SMPTE/MTC via MIDI
Guillemot	Maxi Sound Home Studio Pro 64	RCA stereo, 1/8" (2x3)	1 electrical	None	16	4 to 44.1	18-bit	N/A

Additional Features	Main Synth Chip Set	# of programs ROM/RAM	Sample ROM	Sample RAM	Polyphony	Dedicated Headphone Output	MIDI Ports	Full-Duplex	Real-Time Effects	Bus Type	Price
PCI bus card, built for speed, Screen burn SMPTE to video, Chase clock to SMPTE	None	N/A	N/A	N/A	N/A	No	Yes	Yes. Record 4 stereo pairs while playing back 4 stereo pairs	No	PCI	$1,395
PCI host card (Win 95 drivers)	None	N/A	N/A	N/A	N/A	No	No	Yes. 10 record/ 10 play	No	PCI	$995
Quad out. (Discrete digital and analog outputs for 4 output channels), word clock to digital clock conversion	None	N/A	N/A	N/A	N/A	No	No	Yes	No	ISA	$499
High definition, low noise, analog performance	None	N/A	N/A	N/A	N/A	No	No	Yes	No	ISA	$499
Video genlock, DSP 8-channel software mixer	None	N/A	N/A	N/A	N/A	No	Yes	Yes	Yes, 8+	PCI	$1,595
SMPTE LTC input	None	N/A	N/A	N/A	N/A	None	No	Yes. All channels	Yes, MPEG & 7	PCI	Analog I/O: $3,300; Analog & Digital I/O: $4,000
Onboard DSP MPEG coding/ decoding and effects	None	N/A	N/A	N/A	N/A	None	No	Yes	Yes	PCMCIA	$1,500
Onboard DSP MPEG coding/ decoding and effects	None	N/A	N/A	N/A	N/A	None	No	Yes	Yes	PCMCIA	$1,720
	None	N/A	N/A	N/A	N/A	No	No	Yes	No	ISA	$595
Software bundle w/Cakewalk, Sound Forge, Jammer	E-mu 8000	GM & GS ROM, over 32 MB Sound Font sounds on CD	1 MB	28 MB max, 6 MB included	64 notes (32 hardware 32 software)	No	Yes	Yes. 16 bit record, 8 bit playback while recording	Yes, reverb (3) chorus (4)	ISA	$379
Continuous sample rate correction while synced to MTC, when used with Logic Audio. Comes bundled with Logic Audio Discovery, VMR, Cool Edit Pro LE (Window only) and ZAP (Mac only)	None	N/A	N/A	N/A	N/A	No	No	Yes	No	PCI	$799
Detachable RCA breakout box	None	N/A	N/A	N/A	N/A	No	No	Yes	No	PCI	$349
Ships with multitrack recording software	None	N/A	N/A	N/A	N/A	No	No	Yes	No	PCI	$499
Ships with multitrack recording software	None	N/A	N/A	N/A	N/A	No	Yes	Yes	No	PCI	$999
Windows 95 and DirectX Software Drivers, mini-jack to RCA audio adapters and MIDI IN/OUT/THRU cable included	Optional Kurzweil chip set available via daughter board	General MIDI	4 MB	N/A	32 notes	No	Yes	Yes	No	ISA	$259.95
Surround output, music software bundle inc. Quartz Audiomaster	Dream DSP	N/A	N/A	4 MB	64	No	1	Yes	Yes	ISA	$199

AUDIO/SOUND CARDS

Manufacturer	Model	Analog I/O	S/PDIF I/O	AES/EBU I/O	Max Digital Transfer (bits)	Sampling Rates (kHz)	DACs/ADCs	Sync Types
Korg	1212 I/O	1 in, 1 out (1/4" TRS)	1 in, 1 out (RCA)	None	20	44.1, 48	DACs: 18-bit; ADCs: 20-bit	Word clock, ADAT 9-pin
Midiman	DMAN	2x2 1/8" stereo jacks	None	None	N/A	22, 24, 44.1, 48	16-bit	N/A
Midiman	DMAN 2044	4x4 1/4" mono jacks	None	None	N/A	22, 24, 44.1, 48	20-bit	N/A
SEK'D	Analog ARC 44	4x4 1/4" TRS	None	None	16 bit	22, 32, 48, 44.1, 48	16-bit	Soft cloaking
SEK'D	Analog ARC 88	8 ins, 8 outs (RCA)	1 optical	None	24 bit	32, 44.1, 48	16-bit	Soft cloaking, Multicard sync
SEK'D	PDIF 24	18-bit analog out	1 RCA pair, 1 optical pair	Stereo (1/4")	24 bit	44.1, 48	18-bit	AES/EBU
SEK'D	PRODIF 32	None	1 RCA pair, 1 optical pair	RCA	24 bit	48, 44.1	N/A	Auto sync via PLL
SEK'D	PRODIF 96	20-bit analog out	1 RCA pair, 1 optical pair	1 pair XLR	24 bit 96 kHz	32, 44.1, 48, 64, 88.2, 96	20-bit	Auto sync via input signal
SEK'D	PRODIF Gold ADAT Card	None	1 RCA pair, 1 optical pair	None	24 bit	44.1, 48	N/A	Auto sync via PLL
Sonorus	Studi/o	2 outs; 1/4" headphone jack	Up to 4 optical in and out	None	24 bit	44.1, 48, and varispeed	DAC: 18-bit	With Sync Backplate option, word clock in and out, ADAT time code in, and MTC in
Turtle Beach	Multisound Fuji Pro Series	4 stereo (1/8")	1 electrical (optional)	None	N/A	5.5125–48	20-bit	N/A
Turtle Beach	Multisound Pinnacle Pro Series	Stereo line in/out, aux line in, stereo dynamic mic in (1/8"), internal CD audio	1 electrical (optional)	None	N/A	5.5125–48	20-bit	N/A
Turtle Beach	Pinnacle Project Studio	Stereo line in/out, aux line in, stereo dynamic mic in (1/8"), internal CD audio	1 electrical	None	N/A	5.5125–48	20-bit	N/A
Zefiro Acoustics	ZA2	Stereo out (RCA)	1 optical pair, 1 electrical pair	Stereo (XLR)	24	>5–>60 (simultaneous input and output at different rates)	DAC: 16-bit	AES/EBU, S/PDIF (coax and optical), super clock

Additional Features	Main Synth Chip Set	# of programs ROM/RAM	Sample ROM	Sample RAM	Polyphony	Dedicated Headphone Output	MIDI Ports	Full-Duplex	Real-Time Effects	Bus Type	Price
ADAT optical I/O; compatible with both Mac OS and Win 95	None	N/A	N/A	N/A	N/A	No	No	Yes	No	PCI	$1,250 with Deck II, $999 without Deck II
Mic input; aux input	None	N/A	N/A	N/A	N/A	No	Yes	Yes	No	ISA	$199.95
	None	N/A	N/A	N/A	N/A	No	No	Yes	No	PCI	$349.95
Multicard mode (4 possible)	None	N/A	N/A	N/A	N/A	No	No	Yes	No	ISA	$399
Multicard driver	None	N/A	N/A	N/A	N/A	No	No	Yes	Soft Cloaking	PCI	$799
Multicard mode	None	N/A	N/A	N/A	N/A	No	No	Yes	No	ISA	$399
Simultaneous output on optical/RCAs	None	N/A	N/A	N/A	N/A	No	No	Yes	No	PCI	$599
Inputs switchable on the fly; 4 cards on one machine	None	N/A	N/A	N/A	N/A	Yes	No	Yes	No	PCI	$799
8-channel ADAT lightpipe; multicard mode	None	N/A	N/A	N/A	N/A	No	No	Yes	No	PCI	$699
16 channels digital audio via ADAT lightpipe connectors; one or both of the optical connectors are software switchable to S/PDIF optical I/O. Supplied software drivers include Windows 95 MM System (wave audio), Windows NT4.0, Steinberg ASIO drivers for Mac and Win 95. Configuration control panel, Meter window	None	N/A	N/A	N/A	N/A	Yes	No	Yes	No	PCI	$989
Better than 97 dB S/N; Turtle Beach Hurricane DSP; optional daughter card attachment	None	N/A	N/A	N/A	N/A	No	Yes, 2 sets	Yes	No	ISA	$359 (w/o digital I/O) $399 (w/digital I/O)
Better than 97 dB S/N; Turtle Beach Hurricane for accelerated digital studio transfer; optional daughter card attachment; also includes Digital Orchestrator Pro, Audio Station 2, Audio View, Audio Mixer, 25 MB of instrument samples	Kurzweil MASS[ies]	N/A	4 MB	48 MB max; 0 included	32 notes	No	Yes, 3 sets	Yes	Yes	ISA	$499 (w/o digital I/O) $549 (w/digital I/O)
Better than 97 dB S/N; Turtle Beach Hurricane for accelerated digital studio transfer; optional daughter card attachment; also includes Digital Orchestrator Pro, Audio Station 2, Audio View, MIDI Orchestrator, Audio Mixer, 25 MB of instrument samples	Kurzweil MASS[ies]	N/A	4 MB	48 MB max; 0 included	32 notes	No	Yes, 3 sets	Yes	Yes	ISA	$599
On-board sample rate converter, simultaneous output from AES/EBU, S/PDIF, and analog outs	None	N/A	N/A	N/A	N/A	No	No	Yes	No	ISA	$495

AUDIO PATCH BAYS

Manufacturer	Model	Connector Type	# of Patch-Bay Points	Prewired	Modular	Programmable	Normaling	Special Features	Price
dbx	PB48	1/4" balanced	48	No	Yes	No	Full, half		$179.95
Fostex	3013	1/4" unbalanced	16	Yes	No	No	Half		$139
Furman	PB-40	1/4" balanced (TRS), 1/4" unbalanced, or RCA front or rear	40	Yes	Yes	No	Half		$155–$180
Neutrik	Easy Patch	TB	48	Yes	No	Yes	Full, half, no, parallel, double	Solderless	$725
Neutrik	Easy Patch	TT	96	Yes	No	Yes	Full, half, no, parallel, double	Solderless, digital-capable	$775
Neutrik	Patchlink SP	1/4" balanced	48	No	Yes	Yes	Full, half, isolated, parallel		$125
Pro-Co	PM-148	1/4" unbalanced	48	Yes	Yes	No	Half, full, open, parallel (select-a-switch)		$333.15
Radial Engineering	Radial	TT, 1/4" balanced, 1/4" unbalanced	24–96	Available	Available	No	All options	Custom punch blocks and patch bay designs available	$130–$1,200
Rapco	Rapco Patch bay	TT, 1/4" balanced, unbalanced	48, 52, 96	Yes	Yes	No	All options	Custom wiring configurations	Starting at $199
Re'an	MA 96	TT or Bantam	96	No	No	No	All options	Color coded front panels	$500
Re'an	MA-48E Series	TT	48	Yes (to EDAC)	Yes	Yes, with normalling jumpers	All options		$1,200
Re'an	RPM Series	1/4" balanced, unbalanced	48, 32	Yes	Yes	Yes	Normalled to 1/2 normalled	Battery powered cable tester on one model (RPM48CT)	$100–$200
Switchcraft	Front Access Series	TT	96	Yes	No	No	Normals strapped, normals out	Access from front of rack via slide-out tray, nickel-plated steel frame jacks, gold switching contacts	$1,500
Switchcraft	APP Series	1/4" balanced	48	Yes	No	No	All options		$700
Switchcraft	1/4" Kit Series	1/4" balanced	48, 52	No	No	No	Full, half, no	Cable tray, nickel-plated steel frame jacks, gold switching contacts	$220
Switchcraft	MT48/52 Series	1/4" balanced	48, 52	No	No	No	Full, half, no	Tie bar, nickel-plated steel frame jacks, gold switching contacts	$230
Switchcraft	TT96 EDAC Series	TT	96	Yes	No	No	Full or normals brought out	EDAC-type connectors on back	$1,300
Switchcraft	TT Kit Series	TT	96	No	No	No	Full, half, no	Cable tray, nickel-plated steel frame jacks, gold switching contacts	$300
Switchcraft	TTP96 Series	TT	96	No	No	No	Full, half, no	Tie bar, nickel-plated steel frame jacks, gold switching contacts	$300
TASCAM	PB-Series	TT, 1/4" balanced, unbalanced	32, 64	Yes	Yes	No	Full		Starting at $185
Taytrix		TT	96	Yes (hardwire available)	Yes	No	Full, half	Customized to accommodate your signal-flow specs (for consoles, tape machines, etc.)	Starting at $1,500
Whirlwind	WLF482	Long frame balanced	48	Optional	Yes	No	Full, user specified or user wired		$339.95
Whirlwind	WPB-48S	1/4" balanced	48	Yes	Yes	No	Selectable half or no		$129.95
Whirlwind	WPB-48S/R	1/4" balanced, RCA	24 1/4", 24 RCA	Yes	Yes	No	Selectable half or no		$159.95
Whirlwind	WTT961	TT	96	Optional	Yes	No	Full, any configuration specified by customer or customer can wire	1 rackspace	$439.95

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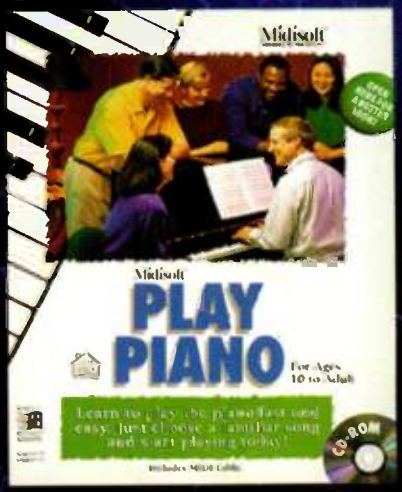

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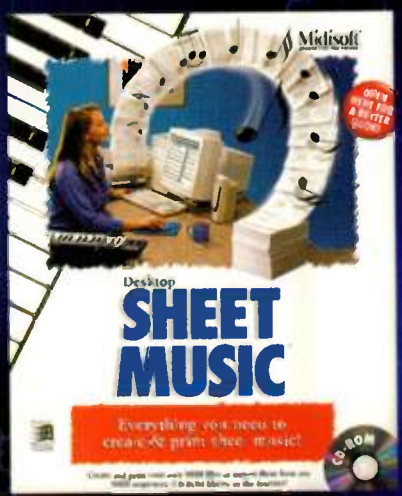

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DIGITAL AUDIO WORKSTATIONS

Manufacturer	Model	Computer Platform	# of Tracks	# of Virtual Tracks	Levels of Undo	Audio Effects	Dynamics Processing	Pitch-Shift Type	Crossfade Types	Sample-Rate Conversion	DSP Plug-in Formats	Internal Mixer Channels	Bus Type	Analog Inputs
Akai	DD1500	Stand-alone	16	0	20	Pitch shift, varispeed, EQ, reverse, time stretch	N/A	Traditional	User selectable from 0 to 80 ms with linear, sine, or log curve	No	N/A	16	N/A	XLR (up to 12)
CreamWare	MasterPort	Win 3.1, 95	16	16	None	Full parametric EQ, room simulator, delay, peak scan, normalize (all real-time)	Compressor, limiter, gate, de-esser (all real-time)	Formant-preserving	Real-time with customizable curves	Yes	Proprietary	16	ISA	RCA (2)
CreamWare	TDAT-16	Win 3.1, 95	Up to 30 or more (PC dependent)	256	10	Full parametric EQ, room simulator, delay, off-line peak scan, normalize (all real-time)	Compressor, limiter, expander, gate, de-esser, spectrum analyzer, correlation meter (all real-time)	Formant-preserving	Real-time with customizable curves	Yes	Proprietary	Up to 256 plus aux	PCI	1/4" TRS
CreamWare	tripleDAT	Win 3.1, 95	Up to 30 or more (PC dependent)	256	10	Full parametric EQ, room simulator, delay, off-line peak scan, normalize (all real-time)	Compressor, limiter, expander, gate, de-esser, spectrum analyzer, correlation meter (all real-time)	Formant-preserving	Real-time with customizable curves	Yes	Proprietary	Up to 256 plus aux	ISA	RCA (2)
Digidesign	Pro Tools III	Mac	16–48	Up to 128	1	Single and 4-band EQ, flanging, chorusing, slap delays, procrastinator, dither, time adjuster, invert, duplicate, normalize, reverse	Compression, limiting, expansion, gating	Traditional, formant-corrected available	Flexible, custom	Yes	AudioSuite, TDM	128	PCI, NuBus	XLR or TRS (up to 64)
Digital Audio Labs	V8	PC	16 simultaneous ins and outs	N/A	N/A	All effects are software based, 3rd party	Software-dependent	Software-dependent	Software-dependent	Software-dependent	V8 plug-ins are in real time and run on Motorola 56002s	Software-dependent	ISA	1/4" bal. or unbal. TRS, trim selectable, number of physical ins and outs depends on which V8 I/Os are attached
Ensoniq	PARIS	Power Mac/ Pentium PC	128	999	99	Pitch Shift, chorus, delay, long delay, room reverb, non-linear reverb, plate (mono/stereo) 64 bands of parametric EQ	Compression-expansion-gate (mono/stereo), normalize/ super normalize, polarity inversion, sample rate conversion, time compression/ expansion	Traditional pitch shifting	Fixed/linear	Yes	Coming soon	16 x 2 with 8 stereo aux busses and 4 inserts per channel	PCI	Varies w/options

Analog Outputs	Digital I/O	ADC	DAC	Sample Rates	Backup Options	Synchronization	Time-Code Rates	MIDI control	SCSI	Maximum Addressable HD Size	Options	Price
XLR (up to 20)	AES/EBU (up to 12 in/16 out)	18-bit, 64x oversampling	20-bit, 8x oversampling	32, 44.056, 44.1, 48	DAT, SCSI-DAT, Exabyte, SCSI copy	LTC, VITC, biphase, MTC, MIDI Clock w/SPP	23.976, 24, 25, 29.97, 29.97d, 30, 30d	Mixer control	Yes	2.048 GB	DD1500A analog I/O unit; DD1500X drive bay with Sony 1.3 GB MO drive; DIO4 4-channel digital I/O; AD4 4-channel A/D converter; DA4 4-channel D/A converter; EQ16 3-band parametric digital EQ; EXM15080 8MB memory-buffer expansion	Starting at $9,990
RCA (2)	S/PDIF (2), Toslink optical (2)	18-bit, 128x oversampling	18-bit, 128x oversampling	32, 44.1, 48	Windows backup	MTC, MIDI Clock, word clock	MTC-24, 25, 29.97, 30	MIDI Clock controls	Yes	Handled by Windows (FAT, 8 GB)	8-band parametric EQ; FFT analyzer; stereo chorus; stereo flanger; auto-pan modulation; signal generator; resizable VU meter; dynamic transposing; denoising; declicking; exciting; subbass enhancement; AES/EBU XLR transformer balanced digital I/O; 18- or 16-channel external rack-mount analog converters	$798
1/4" TRS	ADAT optical (2)	Optional 18-bit, 128x oversampling	Optional 18-bit, 128x oversampling	32, 44.1, 48	Windows backup software and IR for automatic DAT backup	MTC, MIDI Clock, word clock	MTC-24, 25, 29.97, 30	MIDI Clock controls	Yes	Handled by Windows (FAT, 8 GB)	8-band real-time parametric EQ; FFT analyzer; stereo chorus; stereo flanger; auto-pan modulation; signal generator; resizable VU meter; dynamic transposing; denoising; declicking; exciting; subbass enhancement; 18- or 16-channel external rack-mount analog converters	$2,198
RCA (2)	S/PDIF (2), Toslink optical (2)	18-bit, 128x oversampling	18-bit, 128x oversampling	32, 44.1, 48	Windows backup	MTC, MIDI Clock, word clock	MTC-24, 25, 29.97, 30	MIDI Clock controls	Yes	Handled by Windows (FAT, 8 GB)	8-band parametric EQ; FFT analyzer; stereo chorus; stereo flanger; auto-pan modulation; signal generator; resizable VU meter; dynamic transposing; denoising; declicking; exciting; subbass enhancement; AES/EBU XLR transformer balanced digital I/O; RIO 19" rack featuring all input/output options on front and rear allowing for mixing of inputs and adding TRS balanced input/output; LED meters and volume control, eliminating need to run audio cabling to your PC	$1,198
XLR or TRS (up to 64)	S/PDIF (2), AES/EBU (up to 64)	18-bit	18-bit	44.1, 48	Assorted	LTC, VITC, biphase pilot with USD	All	Variety (Mackie, JLCooper, P&G, Peavey, Yamaha)	Yes	4 GB	Over 100 TDM plug-ins from Digidesign and development partners; AudioSuite plug-ins; Digidesign ADAT interface; SampleCell II; Universal Slave Driver; MasterList CD	$4,995
Same as inputs	AES/EBU, Toslink and Coaxial S/PDIF	Dual 16-bit delta-sigma, 64x oversampling	Dual 20-bit delta-sigma, 8x oversampling	44.1, 48	N/A	LTC, VITC, MTC (thru), word clock (all require Timing Gear V8 I/O)	All rates, including pull-up/pull-down and variable	N/A	N/A	N/A	I/O devices: Big Block, Deuce Coupe, ADAT, DA88; Timing Gear and CardD Plus; DSP Supercharger; RAM induction module	$2,500 plus options
Varies w/options	S/PDIF standard, (442 and Interface (AEC), optional ADAT MEC modules	20-bit, 128x oversampling or 24-bit, 128x oversampling	20-bit, 128x oversampling or 24-bit, 128x oversampling	44.1, 48	All standard computer backup mechanisms	MTC standard, SMPTE/VITC MEC module coming Summer 1998	24, 25, 29.97, 29.97d, 30, 30d	N/A	Yes	Unlimited		$2,895 plus options

DIGITAL AUDIO WORKSTATIONS

Manufacturer	Model	Computer Platform	# of Tracks	# of Virtual Tracks	Levels of Undo	Audio Effects	Dynamics Processing	Pitch-Shift Type	Crossfade Types	Sample-Rate Conversion	DSP Plug-in Formats	Internal Mixer Channels	Bus Type	Analog Inputs
Mark of the Unicorn	Audio 2408	Win, Mac	24 simultaneous up to 40	Unlimited (Mac)	Editing is non-destructive	Chorus, limiting, delay, phase shifter, auto-pan, more (Mac)	Compression, expansion, gate, limiting	Mac: Pure DSP format corrected pitch shifting for monophonic material, and conventional pitch shifting for polyphonic; Windows: determined by host application	Mac: pre-fade, post-fade, equal gain, equal power, independent, linear; Windows: determined by host application	Mac: unique SRC filter produces no harmonic distortion in audible range; Windows: determined by host application	Mac: MAS, Adobe Premiere; Windows: determined by host application	Mac: unlimited virtual mixer channels; Win: determined by host application	Mac: unlimited internal busses; Windows: determined by host application	Eight gold-plated -10 unbalanced
Merging Technology	Pyramix Virtual Studio	Win 95, NT	16	Unlimited	32	EQ, delay, comb filter, echo, matrix delay, pitch shift, reverse	Noise gate, limiter, 2 compressors, expander, de-esser w/ side-band EQ	Traditional	Equal power, linear, equal dB	Yes, word length	Proprietary	16	ISA or PCI	8 modular
Metalithic Systems	Digital Wings for Audio Elite	Win 95	128	N/A	Unlimited	30-band graphic/5-band parametric EQ, reverb, delay, flanging, echo, echo chamber, normalize, fade in/out, multitap delay, FFT filters, scientific filters, noise reduction, distortion, time distortion, stretch, pitch shift	Compression, expansion, limiting, noise gate	Formant-preserving and traditional	Any arbitrary crossfade shape	Yes	DirectX Media	8	32-bit PCI	1/4" TRS (8) balanced/unbalanced
Micro Technology	Krystal 1200 DSP Engine with MicroEditor Software	Win 95, NT	512 tracks mix/play simultaneously, each individually adjustable	Unlimited	Unlimited	On individual segments or group-bussed tracks of segments: EQ, echo, phasing, delay, invert phase, plus effects send (analog or digital)	Normalize (segment, track, or project; independent or together), compressor, limiter, change gain from recorded level (+48 dB to -100 dB), optional noise removal	Formant-preserving and traditional	Compute live on each sample (no steps), adjustable instantly with zero delay: linear, exp, log, full sine, equipower-sine, sine-cosine, exp-log, log-exp	Optional, any rate to any rate	DirectX Media	512 active, unlimited muted, group bussing	PCI	1/4"
Otari	PD-80	Stand-alone	8	999	16	Fade in/out, reverse cut, pitch shift	Gating	Formant-preserving and traditional	Linear, logarithmic, user-specified	N/A	N/A	N/A	N/A	25-pin D-sub
Roland	VS-1680	Stand-alone with 320 x 240 LCD	16	256	999	4 independent stereo multi-effects processors or up to 8 mono channels of effects; 34 multi-effects algorithms including reverb, delay, chorus, RSS parametric EQ, hum cancel, vocal eliminator, vocal transformer, lo-fi effects, COSM-based microphone and guitar amp simulation. Supports (2) optional VS8F-2 effects cards	Limiting, compression, de-essing, enhancer, noise suppression	Effect PS, Edit-style PS, vari-pitch	Selectable	N/A	Roland VS8F-2 24-bit effects processor	26 channels w/digital EQ and automation	Internal digital routing (8 Recording, 8 Effect, 4 Internal)	2 balanced XLR, 6 balanced TRS, 1 high-impedance for e. guitar

Analog Outputs	Digital I/O	ADC	DAC	Sample Rates	Backup Options	Synchronization	Time-Code Rates	MIDI control	SCSI	Maximum Addressable HD Size	Options	Price
Eight gold-plated -10 unbalanced	Alesis ADAT lightpipe (24 channels), Tascam TDIF (24 channels), S/PDIF (two independent S/PDIF outs)	20-bit 64x oversampling	20-bit 128x oversampling	44.1, 48	Any system available for Windows or Mac	SMPT, MTC, word clock, ADAT sync, Digital Timepiece control track for sample accurate sync with DA88	24, 25, 29.97 (drop & non-drop), 30 (drop & non-drop)	Yes	Handled by host computer	Maximum allowed by host computer	Two additional I/O boxes can be connected for a total of 144 simultaneous input & output connections	$995 ($695 for each additional I/O)
8 modular	AES	24-bit	24-bit	Up to 96 kHz	All	LTC, VITC, MTC, RS422 machine control	24, 25, 29.97, 29.97d, 30, 30d	Mixer Control	Yes, non-proprietary	Unlimited	Cedar NR-1, Time Zone time scaling, Network support	$7,595 (brand, software, ADAT and S/PDIF interface)
1/4 TRS (8) balanced/ unbalanced	S/PDIF	20-bit	20-bit	11.025, 22.050, 29.4, 44.1, 48	Any computer backup method	MIDI	N/A	Master and slave	Yes	Unlimited	ADAT interface	$1,248
1/4"	AES/EBU, S/PDIF	18-bit	18-bit	8, 11.025, 16, 22.05, 24, 32, 44.1, 48 (optional 10, 12, 18.9, 20, 37.8, 40)	All Windows-format host devices, studio audio DAT, CD-ROM	SMPTE, MTC	24, 25, 29.97, 29.97d, 30	Note/ channel	SCSI or IDE non-proprietary format drives	64 GB	MicroSound external I/O module, MicroSync for SMPTE/Video, MicroCD, DNoise	$2,395
25-pin D-sub	AES/EBU (ADAT/TDIF optional)	20-bit, 64x oversampling	20-bit, 8x oversampling	32, 44.056, 44.1, 47.952, 48	Any SCSI device	Biphase, LTC, VITC	All rates and all types	No	Yes	Unlimited	CB164 remote, video monitor, TDIF interface	$9,950
8	S/PDIF and optical stereo in/out	20-bit, 64x oversampling	20-bit, 128x oversampling	32, 44.056, 44.1, 48	DAT, SCSI Copy, CD Archive with CDR option	MTC, MMC, SPP + MIDI Clock (sync track, tempo map)	24, 25, 29.97, 29.97d, 30, 30d	MMC, MTC, MIDI clock, Mixer Control, SysEx	Yes	128 GB = 2GB x 8 partitions x 8	VS8F-2 effects card, CD Recorder, hardshell case	$3,195

DIGITAL AUDIO WORKSTATIONS

Manufacturer	Model	Computer Platform	# of Tracks	# of Virtual Tracks	Levels of Undo	Audio Effects	Dynamics Processing	Pitch-Shift Type	Crossfade Types	Sample-Rate Conversion	DSP Plug-in Formats	Internal Mixer Channels	Bus Type	Analog Inputs
Roland	VS-840	Stand-alone	8	64	999	1 built-in stereo multi-effects processors with 26 multi-effects algorithms including reverb, delay, chorus, RSS, COSM-based guitar amp simulation, vocoder	Limiting, compression	Effect PS, vari-pitch	Selectable	No	N/A	12 channels w/digital EQ	Internal digital routing	(4) 1/4" inputs, (1) guitar input, (2) RCA
Roland	VS-880	Stand-alone	8	64	999	2 independent stereo multi-effects processors or up to 4 mono channels of effects; 30 multi-effects algorithms including reverb, delay, chorus, RSS, parametric EQ, hum cancel, vocal eliminator, voice transformer, lo-fi effects, COSM-based microphone and guitar amp simulation. Supports optional VS8F-1 effects card	Limiting, compression, de-essing, enhancer, noise suppression	Effect PS, Edit-style PS, vari-pitch	Selectable	No	Roland VS8F-1 effects processor	14 channels w/digital EQ and automation	Internal digital routing	(4) 1/4" inputs
SADiE	SADiE	Win 95	10	Unlimited	25	EQ, delay, reverb, chorus, flange, stereo width, noise reduction	Compression, expansion, gating, dither	Traditional	Linear, sine, cosine, log, exponential, hypercos, equal power	Yes	SADiE	Unlimited	ISA	XLR (2)
Sonic Solutions	Sonic Studio 16•24	Mac	24 (expandable to 64)	144	100	EQ, compression	Compression	Formant-preserving and traditional	Infinitely variable, real-time	Yes	Adobe Premiere plug-ins using Studio Vision	16 (expandable to 64)	PCI NuBus	Up to 64
Soundscape	SSHDR1 Plus, SS810-1	Win 3.1, 95, NT	18–192	64–1,024	Unlimited	EQ, chorus, delay, flanger, noise gate, normalize, TC Reverb, Wave reverb	Audio ToolBox (multiband compression, limiter, gate)	Formant-preserving and traditional	Unlimited	Optional	Proprietary and third party	unlimited	ISA	2–10
Spectral	Prisma	Win 3.1, 95, NT	8–12	240	10	EQ, pitch shifting, normalize, gain, deglitching, silence stripping, reversal	Compression, expansion, gating	Formant-preserving and traditional	200 steps between log and exponential	Yes	AOS	8–12	ISA	1/4" TRS (8)
Xytal	ADMS	Stand-alone	16	N/A	1 (plus EDL, image save)	Phaser, flanger, echo, reverb, reverse audio, distortion, noise removal, multiple filter types	Compressor, limiter	Formant-preserving and traditional	Linear, log, antilog, user-definable	Yes	N/A	16	PCI/ISA	1/8" minijacks (2) (also avail. with up to 8 RCA)

Analog Outputs	Digital I/O	ADC	DAC	Sample Rates	Backup Options	Synchronization	Time-Code Rates	MIDI control	SCSI	Maximum Addressable HD Size	Options	Price
4, phones	S/PDIF stereo out	20-bit, 64x oversampling	20-bit, 128x oversampling	32, 44.1, 48 Vari-pitch allows from 24.1 kHz to 50.4kHz	Zip disk	Master - MTC, MMC, SPP + MIDI Clock	24, 25, 29.97, 29.97d, 30, 30d	MMC, MTC, MIDI Clock, Mixer Control, SysEx	Option	100MB Zip disk (55 minutes at MT2 mode)	SCSI expansion kit, carry bag	$1,395
4	S/PDIF stereo in/out	18-bit	18-bit	32, 44.056, 44.1, 48 Vari-pitch allows from 24.1 kHz to 50.4 kHz	DAT, SCSI Copy	MTC, MMC, SPP + MIDI Clock (sync track, tempo map)	24, 25, 29.97, 29.97d, 30, 30d	MMC, MTC, MIDI clock, Mixer Control, SysEx	Yes	32 GB = 1GB x 4 partitions x 8	VS8F-1 effects card, CD Recorder, hardshell case	$2,245
XLR (4), RCA (4)	AES/EBU, S/PDIF	16-bit, 64x oversampling	16-bit, 64x oversampling	32, 44.1, 48 pull up, pull down, half and quarter of all rates	Audio DAT, SCSI drive, Exabyte tape	LTC, MTC, all rates	24, 25, 29.97, 30, 30d	MTC	Yes	9	CEDAR denoise	$10,995
Up to 64	Up to 64	18-bit	18-bit	44.1, 48, and pull downs	Mezzo Archiver and Retrospect	SMPTE, word sync	30, 29.97, 29.97d, 25, 24, feet and frame	MTC, MIDI controllers via OMS	Yes	23 GB	High-density studio (96 kHz 24-bit), no noise, Media Net, digital video playback, CD mastering with DDP support	$7,999
4–12	AES, TDIF, ADAT, S/PDIF	16-bit (20-bit option)	18-bit (20-bit option)	22.050, 32, 44.056, 44.1, 47.952, 48	DAT, PC DRIVE removable media	SMPTE, MTC, word clock	24, 25, 29.97, 29.97DF, 30, 30DF	MMC, MTC	No	None	Time stretch, pitch shift, sample-rate conversion, reverb, EDL autoconform, two types of CD writing programs, Audio Toolbox (chorus, delay, flanger), dynamics	Starting at $2,750
1/4" TRS (8)	AES/EBU S/PDIF	16-bit, 64x oversampling	18-bit, 8x oversampling	32, 44.056, 44.1, 48 custom	Jaz, DAT, ADAT, Exabyte, MO, CD-ROM	SMPTE, VITC, MTC	24, 25, 29.97, 29.97d, 30	MMC, MTC	Yes	9 GB	CD authoring, file format conversion, EDL autoconform	Starting at $3,730
1/8" minijacks (2) (also avail with up to 8 RCA)	S/PDIF	20-bit	20-bit	11.025–48	Jaz, CD-ROM	SMPTE	24, 25, 30, 30d	No	No	10 GB	Completely customizable studio setup available, including: analog mixer, expansion cards, microphones, headphones, mic stands, headphone distribution system	Starting at $3,499

DIGITAL MIXDOWN MACHINES

Manufacturer	Model	Type	Sampling Frequency	Playback Frequency	ADC	DAC	Analog I/O	Digital I/O	Time Code	SCMS	Separate Mic Input	Write/Read Speed
Denon	DMD-1300P	MiniDisc	32, 44.1, 48 kHz	44.1 kHz	20-bit, 8x oversampling	20-bit, 8x oversampling	RCA	Optional S/PDIF (RCA)	No	Yes, defeatable	No	N/A
Denon	DN-80R	MiniDisc	44.1 kHz	44.1 kHz	16-bit	16-bit	XLR	AES/EBU (XLR)	No	Yes, defeatable	Yes, L & R XLRs	N/A
Denon	DN-M2000R	MiniDisc	44.1 kHz	44.1 kHz	16-bit	16-bit	RCA unbalanced	S/PDIF (RCA)	No	Yes, defeatable	None	N/A
Denon	DN1100R	MiniDisc	44.1 kHz	44.1 kHz	16-bit	16-bit	XLR, RCA	S/PDIF (RCA), IEC-958	No	Yes, defeatable	None	N/A
Denon	DN990R	MiniDisc	44.1 kHz	44.1 kHz	16-bit	16-bit	XLR	AES/EBU (XLR)	No	Yes, defeatable	None	N/A
Denon	DNM1050R	MiniDisc	32, 44.1, 48 kHz	44.1 kHz	16-bit	18-bit	XLR, RCA	AES/EBU (XLR), S/PDIF (RCA)	Optional SMPTE kit (ACD-27MS)	Yes, defeatable	None	N/A
Fostex	D15	DAT	44.1, 48 kHz	44.1, 48 kHz	18-bit	18-bit	XLR	AES/EBU (XLR)	Optional	No	None	N/A
Fostex	D25	DAT	44.1, 48 kHz	44.1, 48 kHz	18-bit	18-bit	XLR	AES/EBU (XLR)	Yes (tape track)	No	None	N/A
Fostex	D30	DAT	44.1, 48 kHz	44.1, 48 kHz	18-bit	18-bit	XLR	AES/EBU (XLR)	Yes (tape track)	No	None	N/A
Fostex	D5	DAT	32, 44.1, 48 kHz	44.1, 48 kHz	1-bit	1-bit	XLR	AES/EBU (XLR), S/PDIF (optical)	No	No	None	N/A
HHB	GENEX MO GX8000(A)	DAT Recorder	44.1, 48, 88.2, 96 kHz	44.1, 48, 88.2, 96 kHz	16–20 -bit, 24 bit optional	16–20 -bit, 24 bit optional	XLR	AES/EBU (XLR)	Yes	No	No	Variable
HHB	CDR800	CD Recorder	32 kHz to 48 kHz	44.1 kHz	16-bit	16-bit	XLR, RCA	AES/EBU, S/PDIF (optical and RCA)	No	Selectable 1X copy allowed, no copies allowed, or unrestricted copying allowed	None	Real Time
HHB	PDR1000 (TC/MS/HM)	Portable DAT Recorder	32 kHz, 44.1 kHz, 48 kHz	44.132 kHz, 44.1 kHz, 48 kHz	16-bit	16-bit	XLR, RCA	AES/EBU, S/PDIF (RCA)	Yes (Optional)	No	Yes, XLR	Real Time or 1/2 speed in LP mode
Marantz	Professional CDR615	CD-R	32–58 kHz	44.1 kHz	20-bit	1-bit	Balanced XLR input & unbalanced RCA ouput	S/PDIF (RCA)	No	No	None	1x
Marantz	Professional CDR620	CD-R	32–58 kHz	44.1 kHz	20-bit	1-bit	Balanced XLR input and output	AES/EBU XLR S/PDIF (RCA)	No	No	None	1x (2x write, 4x read via SCSI)
Marantz	Professional CDR630	CD-R & CD-RW	32–48 kHz	44.1 kHz	18-bit	1-bit	Balanced XLR and unbalanced RCA input and unbalanced RCA output	S/PDIF (optical and RCA)	No	No	None	1x
Panasonic	SV-3800	DAT	32, 44.1, 48 kHz	32, 44.1, 48 kHz automatic	18-bit	20-bit equivalent	XLR	AES/EBU (XLR), S/PDIF (optical and RCA)	N/A	Yes, defeatable	None	N/A
Panasonic	SV-3900	DAT	32, 44.1, 48 kHz	32, 44.1, 48 kHz automatic	18-bit	18-bit	XLR	AES/EBU (XLR), S/PDIF (RCA)	N/A	Yes, defeatable	None	N/A
Panasonic	SV-4100	DAT	32, 44.1, 48 kHz	32, 44.1, 48 kHz automatic	18-bit	20-bit equivalent	XLR	AES/EBU (XLR), S/PDIF (optical and RCA)	Word-clock sync	Yes, defeatable	None	N/A

SCSI Connection	Transport Disc Loading	Bundled Software	Disc-at-Once	Frequency Response	Signal-to-Noise Ratio	Total Harmonic Distortion	Special Features	Price
No	Motor Driven	No	N/A	4 Hz–20 kHz	≥105 dB	≤0.02%	Includes wireless remote	$799
No	Manual	Yes	N/A	20 Hz–20 kHz	≥92 dB	≤0.012%	Portable for field use; optional PC control software	$4,200
No	Manual	No	N/A	20 Hz–20 kHz	≥84 dB	≤0.02%	Hot starts; A-B seamless loop	$1,250
SCSI-1 (parallel DB25)	Motor driven	No	N/A	20 Hz–20 kHz	≥90 dB	≤0.012%	Hot starts	$2,600
SCSI-1 (parallel DB25)	Manual	No	N/A	20 Hz–20 kHz	≥84 dB	≤0.02%	Optional PC control software	$2,800
SCSI-1 (parallel DB25)	Motor driven	No	N/A	20 Hz–20 kHz	≥92 dB	≤0.012%	External sync; hot-start option; RS232/422; standard PC keyboard connector	$1999
No	Drawer	No	N/A	20 Hz–20 kHz	92 dB	0.05%	Parallel port included; time code with video reference and RS422 rack as options	$3,295 (basic)
No	Drawer	No	N/A	20 Hz–20 kHz	90 dB	0.05%	Separate audio channels and varispeed over RS422 parallel port	$7,995
No	Tray	No	N/A	20 Hz–20 kHz	92 dB	0.05%	Comprehensive LED screen; separate audio channels and user presets; easy servicing layout	$ 10,995
No	Tray	No	N/A	20 Hz–20 kHz	92 dB	N/A	Supplied infrared remote	$1,195
Yes	MO Disc - manual	Yes	Yes	1 Hz–20 kHz	N/A	N/A	GXR48 Remote Controller	$9,495 (plus various options)
None	Stable Platter Mechanism - manual	Not required	Optional	2 Hz–20 kHz	105 dB	0.003%		$2,195
None	4 Head/4 Direct Drive - manual	Not required	Optional	20 Hz–20 kHz	90 dB	<0.003%	Time-code version, Master Sync Module, and Headphone Matrix options available	PDR1000: $2,995; PDR1000TC: $6,395; PDR1000TC/MS/HM: $6,995
No	Tray	No	Yes	20 Hz–20 kHz	95 dB (recording) 120 dB (playback)	N/A	Sample-rate converter; DAT ID reader; wired remote; audio delay; digital fader; indexing	$2,300
SCSI-2	Tray	No	Yes	20 Hz–20 kHz	95 dB (recording) 120 dB (playback)	N/A	Sample-rate converter; DAT ID reader; wired remote control; audio delay; digital fader; indexing; digital cascading	$3,600
No	Tray	No	Yes	20 Hz–20kHz	90 dB (recording) 105 dB (playback)	N/A	Uses both professional and consumer discs; sample rate converter; 44.1 kHz SRC bypass; IR remote control; DAT ID recorder	$1,200
No	N/A	No	N/A	16 Hz–22 kHz	>92 dB	<0.007%	Remote control standard; optional hard-wired control	$1,695
No	N/A	No	N/A	16 Hz–22 kHz	>92 dB	<0.007%	RS422 serial control	$2,895
No	N/A	No	N/A	16 Hz–22 kHz	>92 dB	<0.007%	Remote control standard	$2,950

DIGITAL MIXDOWN MACHINES

Manufacturer	Model	Type	Sampling Frequency	Playback Frequency	ADC	DAC	Analog I/O	Digital I/O	Time Code	SCMS	Separate Mic Input	Write/Read Speed
Pioneer Electronic	Elite PDR-99	CD-R	32, 44.1, 48 kHz	44.1 kHz	N/A	N/A	RCA	S/PDIF (optical and RCA)	N/A	Yes	None	1x
Pioneer Electronic	PDR-04	CD-R	44.1 kHz	44.1 kHz	N/A	N/A	RCA	S/PDIF (optical)	N/A	Yes	None	1x
Pioneer Electronic	PDR-05	CD-R	32, 44.1, 48 kHz	44.1 kHz	N/A	N/A	RCA	S/PDIF (RCA), TOSLINK (optical)	N/A	Yes	None	1x
Ricoh	MP6200 MediaMaster CD-RW Drive	CD-RW	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Yes, defeatable	None	2x, 6x
Sony	MDS-JE510	MiniDisc	44.1 kHz	Auto	18-bit	18-bit	RCA	S/PDIF (optical)	No	Yes	None	N/A
Sony	MZR-30	Portable MiniDisc	44.1 kHz	Auto	16-bit w/ATRAL	16-bit w/ATRAL	1/8" mini	optical/mini	No	Yes	None	N/A
Sony	PCM-M1	DAT	32, 44.1, 48 kHz	Auto	16-bit	16-bit	1/8" stereo mini (mic/line)	7-pin (used w/optional cables)	No	No	Yes (1/8" stereo)	N/A
Sony	PCM-R300	DAT	32, 44.1, 48 kHz	Auto	20-bit	16-bit	RCA	S/PDIF (optical and RCA)	No	No	None	N/A
Sony	PCM-R500	DAT	32, 44.1, 48 kHz	Auto	20-bit	16-bit	XLR, RCA	AES/EBU (XLR); S/PDIF (RCA)	No	No	None	N/A
Sony	TCD-D8	DAT	32, 44.1, 48 kHz	Auto	16-bit	16-bit	1/8" stereo	7-pin connector (requires optional cable)	No	Yes	Yes (1/8" stereo)	N/A
Studer	D424	Magneto-Optical Recorder	44.056, 44.1, 47.952, 48 kHz	48 kHz	20-bit, 64x over-sampling	20-bit, 128x over-sampling	XLR	AES/EBU (XLR)	Yes (SMPTE)	N/A	Yes	N/A
Studer	D741	CD-R auto source	44.1 kHz; 32–50 kHz	44.1 kHz	18-bit	20-bit	XLR S/PDIF (RCA)	AES/EBU (XLR);	No defeatable	Yes,	None	Write: 1x (2x w/SCSI); read: 1x (2x from another D741)
TASCAM	DA-20 MKII	DAT	32, 44.1 48 kHz	32, 44.1, 48 kHz	18-bit	18-bit	RCA	S/PDIF (RCA)	No	Yes, defeatable	None	N/A
TASCAM	DA-30 MKII	DAT	44.1, 48 kHz	44.1, 48 kHz	18-bit	18-bit	XLR, RCA	AES/EBU (XLR), S/PDIF (RCA)	No	Yes, defeatable	None	N/A
Yamaha	CDR400	CD-R	44.1 kHz	44.1 kHz	N/A	N/A	RCA	N/A	N/A	No	None	Write: 1x, 2x, 4x; read: 1x, 2x, 4x, 6x
Yamaha	MD4	MiniDisc	44.1 kHz	44.1 kHz	N/A	N/A	N/A	N/A	MTC	No	Yes	N/A
Yamaha	MD8	MiniDisc	44 kHz	44 kHz	N/A	N/A	N/A	N/A	MTC	No	Yes	N/A

SCSI Connection	Transport Disc Loading	Bundled Software	Disc-at-Once	Frequency Response	Signal-to-Noise Ratio	Total Harmonic Distortion	Special Features	Price
No	Stable platter mechanism	No	N/A	Hz–20 kHz	92 dB(recording); 112 dB (playback)	0.004% (recording); 0.0026% (playback)	Built-in sampling-frequency converter allows direct recording from digital sound sources sampled at 48 kHz or 32 kHz. Legato Link Conversion	$2,000
No	Stable platter mechanism	No	No	2 Hz–20 kHz	92 dB (recording); 108 dB (playback)	0.005% (recording); 0.004% (playback)	Analog source auto level recording	$1,185
No	Stable platter mechanism	No	No	2 Hz–20 kHz	92 dB (recording); 112 dB (playback)	0.004% (recording); 0.0026% (playback)	Built-in sampling-frequency converter allows direct recording from digital sound sources sampled at 48 kHz or 32 kHz	$1,970
SCSI-2	N/A	MediaMaster Bundled kit: Adaptec Easy CD Creator (for premastering), Direct CD, Seagate Back-up Exec.	Yes	N/A	N/A	N/A	Dust-free design, running OPC	$599 SRP drive; $699 w/Media-Master Bundle
No	N/A	No	N/A	5 Hz–20 kHz	>96 dB	N/A	Built-in sampling-frequency converter allows direct recording from digital sound sources sampled at 48 kHz	$360
No	N/A	No	N/A	25 Hz–20 kHz	>96 dB	N/A	Jog Dial for editing/song search; digital sample-rate converter; wired headphone/remote; auto-limiter	$449
No	N/A	No	N/A	20 Hz–20 kHz	N/A	<0.008%	Adjustable Level-Sync; AGC/limiter circuit	$995
No	N/A	No	N/A	20 Hz–20 kHz	N/A	<0.06%	High-resolution A/D with Super Bit-Mapping	$995
No	N/A	No	N/A	20 Hz–20 kHz	N/A	<0.06%	High-resolution A/D with Super Bit-Mapping; 4 D.D. motor transport	$1,695
No	N/A	No	N/A	20 Hz–20 kHz	N/A	<0.008%	High speed search/cue; Auto-limiter; Back-lit LCD	$899
SCSI-2	M.O. (Pioneer)	Proprietary (SADIE compatible)	N/A	20 Hz–20 kHz	96 dB (16-bit), 108 dB (20-bit), 120 dB (24-bit)	N/A		$8,950
SCSI-2	Single tray	Proprietary	Yes	20 Hz–20 kHz	90 dB	0.008%	Discrete analog levels; built-in cue speaker; headphone jack	$3,950
No	Front	No	N/A	20 Hz–20 kHz	>92 dB	<0.05%		$1,099
No	Front	No	N/A	20 Hz–20 kHz	>94 dB	<0.05%	User-selectable copy ID	$1,599
SCSI-2	Tray	Adaptec Easy CD Pro (PC); DirectCD (PC); Toast (Mac)	Yes	20 Hz–20 kHz	N/A	N/A	Rapid linked packet writing; flash ROM; 2 MB buffer	$899(external) $799 (internal)
No	N/A	No	N/A	20 Hz–20 kHz	85 dB	0.01%	Multitrack reader/cue list	$849
No	N/A	No	N/A	20 Hz–20 kHz	96 dB	0.012%	Cut and paste editing	$1,399

DIRECT BOXES

Manufacturer	Model	Type	Power	# of Channels
AMB	Tube-buffered direct-injection box	Floor	Internal AC	
Anthony DeMaria Labs	300 G	Floor or rack-mount	External AC	2
ARX	DI-6s	Active	AC 110V	6
ARX	DI-4	Active	AC 110V	4
ARX	DI-2	Active	Battery, Phantom, wall wart	2
ARX	DI-1	Active	Battery, Phantom, wall wart	1
Avalon Design	U5	Rack-mount	Active, AC powered	1
Barcus-Berry	Matchmaker	Floor	9V battery, 9 VDC external power source, 48V phantom power	1
BBE	DI-10	Floor	9V battery, 9 VDC external power source,48V phantom power	1
BBE	DI-100	Floor	9V battery, 9 VDC external power source, 48V phantom power	1
Boss	DI-1	Floor	Battery/Phantom	1
BSS Audio	AR133	Floor	Phantom 48V or 9V battery	1
BSS Audio	AR416	Rack-mount	Internal AC	4
Countryman	Type 85	Floor	Phantom or battery	1
Demeter	VTDB Tube Direct Box (mono)	Floor	AC external	1
Demeter	STDB-2 Stereo Direct Box (mono)	Rack-mount	AC external	1 mono; 2 stereo
DOD	AC275	Floor	AC, battery, or phantom	1
DOD	AC265	Floor	Passive	1
DOD	AC260	Floor	Passive	1
Dynaudio Acoustics	The Reamp	Free standing for portability	Passive	1
E.M.O.	E520	Floor	Passive	1
E.M.O.	E525	Floor	Passive	2 stereo
E.M.O.	E535	Rack-mount	Passive	1
E.M.O.	E545	Rack-mount	Passive	6
E.M.O.	E580	Rack-mount	Passive	8
E.M.O.	E540	Floor	Passive	1
Ebtech	LLS-8	Rack-mount	Passive	8
Ebtech	HE-8	Rack-mount	Passive	8
Ebtech	LLS-2 PKG	Table or equipment-mount	Passive	2
Ebtech	HE-2 PKG	Table or equipment-mount	Passive	2
Folded Space	Micro Room	Floor	Passive	1
Gepco	GDB-1	Floor	Passive	1
Jensen Transformers	ISO-MAX DB-2PX	Stand-alone or rack-mountable	Passive	2
Klark-Teknik	LBB100	Floor	48V phantom power	1
Peavey	PS-4AC	Floor	External 16.5 VAC wall wart	4
Peavey	EDI	Floor	Passive	1

Inputs	Outputs	Ground Lift	Special Features	Price
1/4" (1)	1/4" (1); XLR (1)	Yes	ECC83 tube, Jensen JT-DB-E transformer	$595
1/4" (1)	1/4" (2); XLR (2)	Yes	Gain	$899
Unbalanced 1/4"	Balanced XLR	Yes	Can mix all 6 channels to a single output, can also be a 1-to-6 splitter	$395
Unbalanced 1/4"	Balanced XLR	Yes	Can mix all 4 channels to a stereo pair, aux send and returns; ground-lift switch	$369
Unbalanced 1/4"	Balanced XLR	Yes	Easy battery change; ground-lift switch	$155
Unbalanced 1/4"	Balanced XLR	Yes	Easy battery change, ground-lift switch	$110
1/4" (1)	1/4" (1); 1/4" speaker (1); XLR (2)	Yes	3 MΩ input; vari gain to +30 dB; lowpass filter; 6-position tone switch; 1/2 rackspace; rack kit available	$679
1/4" (1); 1/4" speaker (1)	1/4" (1); 1/4" speaker (1); XLR (1)	No	Speaker-simulating filter	$129
1/4" (1); 1/4" speaker (1)	1/4" (1); 1/4" speaker (1); XLR (1)	No	Speaker-simulating filter	$129
1/4" (1)	1/4" (1); XLR (1)	Yes	Built-in BBE Sonic Maximizer with independent process and contour controls	$159
1/4" (1)	1/4" (1); XLR (1)	Yes	Auto power-off, phase-inverse switch	$149.50
1/4" (1); XLR (1)	1/4" (1); XLR (1)	Yes	Pad switch (0 dB, -20 dB, -40 dB)	$185
1/4" (4)	1/4" (4); XLR (4)	Yes	Pad switch (0 dB, -20 dB, -40 dB); lowpass filter; phase reverse, reversible rack ears (XLR front or rear)	$899
1/4" (1)	1/4" (1); XLR (1)	Yes	Isolates ground even when on phantom power; RF filtering and static-discharge protection	$231.70
1/4" (1)	1/4" (1); XLR (1)	Yes	27 MΩ input impedance	$600
1/4" (1)	1/4" (1); XLR (1)	Yes	27 MΩ input impedance	$1,100
1/4" (2); XLR (1)	1/4" (2); XLR (1)	Yes	Speaker/instrument switch for input-level selection	$89.95
1/4" (2); XLR (1)	1/4" (2); XLR (1)	Yes	3-position pads	$79.95
1/4" (2); XLR (1)	1/4" (2); XLR (1)	No	Can act as mic/instrument splitter	$59.95
+4 dBm XLR	-10 dBm 1/4" jack	Yes	The Reamp is a reverse Direct Box that allows output from any recorder to be reinserted into amplifier input; adjustable output level	$299
1/4" line (1); 1/4" instrument (2); 1/4" speaker (2)	XLR (1)	Yes	20 Hz–40 kHz frequency response	$124
1/4" line (2); 1/4" instrument (4); 1/4" speaker (4)	XLR (2)	Yes	20 Hz–40 kHz frequency response	$359.50
1/4" line (1); 1/4" instrument (2); 1/4" speaker (2)	XLR (1)	Yes	20 Hz–40 kHz frequency response	$129.50
1/4" line (6); 1/4" instrument (12); 1/4" speaker (12)	XLR (6)	Yes	20 Hz–40 kHz frequency response; can be shortloaded; uses E535 modules	$744.50
1/4" (8)	1/4" (1); XLR (1)	Yes	Single rackspace; parallel unbalanced outputs for local monitoring	$1,225
1/4" line (1); 1/4" instrument (2); 1/4" speaker (2)	XLR (1)	Yes	High isolation	$189.95
1/4" (8)	1/4" (8)	No	Converts between -10 dBV and +4 dBu equipment; hum eliminator; converts automatically between balanced and unbalanced lines	$344.95
1/4" (8)	1/4" (8)	No	Breaks ground loops; converts automatically between balanced and unbalanced lines	$284.95
1/4" (2)	1/4" (2)	No	Converts between -10 dBV and +4 dBu equipment; comes with 4 RCA adapters plus Velcro and rubber feet for mounting options; hum eliminator; converts automatically between balanced and unbalanced lines	$89.95
1/4" (2)	1/4" (2)	No	Comes with 4 RCA adapters plus Velcro and rubber feet for mounting options; breaks ground loops; converts automatically between balanced and unbalanced lines	$74.95
1/4" (2)	XLR (1)	No	Real speaker-to-mic recording silently; input and output electronically isolated	$395
1/4" (2)	XLR (1)	Yes	20 dB pad	$34
1/4" (2)	XLR (2)	Yes	Jensen JT-DB-EPC Transformer	$199.95
1/4" (2); XLR (1)	XLR (1)	Yes	Switchable input and output attenuators	$196
XLR (4)	XLR (4)	Yes	Provides phantom power to four electret condenser microphones; includes power supply	$129.99
1/4" (1)	1/4" (1); XLR (1)	No		$59.99

DIRECT BOXES

Manufacturer	Model	Type	Power	# of Channels
Peavey	IA 10/4	Floor	External 16.5 VAC wall wart	2
Peavey	ID-1G	Floor	Passive	1
Peavey	1:1 Interface	Floor	Passive	1
Peavey	PS-2C	Floor	Battery	2
Peavey	PD-4	Floor	Passive	1
Peavey	EDB-1	Floor	Phantom, battery, 16V AC/DC external	1
Peavey	Patching Adapter	Floor	Passive	1
Pro-Co	CB-1	Floor	Passive	1
Pro-Co	DB-1	Floor	Passive	1
Pro-Co	DB-4A	Rack-mount	Passive	4
Radial Engineering	Radial JD4	Rack-mount	Passive	4
Radial Engineering	Radial JD1	Floor	Passive	1
Rapco	ADB+8	Floor	Battery or phantom	1
Rapco	DBR400	Rack-mount	Passive	4
Rapco	DB-100	Floor	Passive	1
Rapco	DB-101SL	Floor	Passive	1
Roland	DI-1	Floor	Battery/phantom	1
Rolls	RDB104	Rack-mount	Internal AC	4
Rolls	DB14	Floor	Passive	1
Rolls	ADB2	Floor	Phantom	1
Rolls	DB25	Floor	Passive	1
Rolls	ADB3	Floor	External AC	2
Stewart Electronics	ADB-1	Rack-mount or floor	9V battery or 48V phantom	1
Stewart Electronics	ADB-4	Rack-mount or floor	External supply or 48V phantom	4
Tube Works	4001	Floor	External 30 VAC power supply	1
Tube Works	4002	Rack-mount	External 30 VAC power supply	2
Westcam	DB-1E	Floor and music stand	Passive Jensen Transformer	1
Westcam	DB-4E	Rack-mount	Passive Jensen Tranformer	4
Whirlwind	HotBox	Floor	Battery or phantom	1
Whirlwind	HotBox Quad	Rack-mount	Internal AC	4
Whirlwind	Director	Floor	Passive	1
Whirlwind	Multi Director	Rack-mount	Passive	4
Whirlwind	Mic Eliminator (guitar)	Floor	Battery or phantom	1
Whirlwind	IMP 2	Floor	Passive	1

Inputs	Outputs	Ground Lift	Special Features	Price
1/4" (2), XLR (2)	1/4" (2), XLR (2)	No		$99.99
1/4" (1)	XLR (2)	Yes		$45.99
1/4", XLR	1/4" (1), XLR (1)	Yes		$59.99
XLR (2)	XLR (2)	No		$57.99
1/4" (1)	1/4" (4)	No	Mono/stereo switch; headphone distribution	$39.99
1/4" (1)	1/4" (1), XLR (1)	No		$69.99
1/4" (1)	1/4" (5)	No		$27.99
1/4" (1)	1/4" (1), XLR (1)	Yes		$56.15
1/4" (1)	1/4" (1), XLR (1)	Yes	Speaker/instrument switch; speaker mode handles amps up to 600W; hi-cut filter	$122.15
1/4" (3)	XLR (1)	Yes	Line/instrument switch handles signal levels to +34 dBV; three in/out jacks/channel for loop-through	$333.15
1/4" front (8), 1/4" rear (8)	XLR (4)	Yes	Merged input pairs; switching input jacks (rear to front); phase reverse; pad (15 dB); ultrasonic noise filter	$899.95
1/4" (2)	XLR (1)	Yes	Merged inputs; pad (15 dB); ultrasonic noise filter	$239.95
1/4" (1)	1/4" (1), XLR (1)	Yes	3-position switch for mic level, unity gain, or +8 dB forward gain	$197
1/4" (4)	1/4" (4), XLR (4)	Yes	Four units in a single rackspace	$249
1/4" (1)	1/4" (4), XLR (4)	Yes	Special ground-lift jack (instead of a switch)	$49.95
1/4" (1)	1/4" (4), XLR (4)	Yes	Accepts instrument- and speaker-level signals for an "overdrive" tone	$59.95
1/4" (1)	1/4" (1), XLR (1)	Yes	Auto power-off, phase-inverse switch	149.50
1/4" (8)	XLR (4)	Yes		$200
RCA (2)	RCA (2), XLR (1)	No	Two volume controls	$70
1/4" (2)	XLR (1)	Yes	3-position attenuator	$50
1/4" (2)	XLR (1)	Yes	3-position attenuator	$35
1/4" (4)	XLR (2)	Yes	Tube-based, 20 dB gain	$200
1/4" (1)	1/4" (1), XLR (1)	Yes	Transformerless	$109
XLR (4)	1/4" (1), XLR (4)	Yes	Transformerless; input-sensitivity select; ground lift on each channel; switchable output level; transformerless direct coupled output	$379
1/4" (1)	1/4" unbal (1), XLR bal (1), 1/4" speaker/loop out (1)	Yes	Speaker/Normal switch; Boost switch (XLR output only); Power on/off switch	$195
1/4" (1 per channel)	1/4" unbal (1 per channel), XLR bal (1 per channel), 1/4" speaker/loop out (1 per channel)	Yes	Speaker/Normal switch; Boost switch (XLR output only); Power on/off switch; transformerless direct coupled output	$395
1/4" (1)	XLR (1)	Yes	Switches and jacks gold plated; pad and filter switches	$179.95
1/4" (2) front/rear	XLR (2) front/rear	Yes	Switches and jacks gold plated; pad and filter switches; built-in RFI filter	$650
1/4" (1)	1/4" (2), XLR (1)	Yes	Instrument/amp input switch; extremely high input impedance	$159.95
1/4" (4)	1/4" (4), XLR (4)	Yes	Instrument/amp input switch	$699.95
1/4" (1)	1/4" (2), XLR (1)	Yes	Instrument/speaker input switch; lowpass switch to eliminate amplifier noise	$89.95
1/4" (4)	1/4" (4), XLR (4)	Yes	Instrument/speaker input switch; lowpass switch to eliminate amplifier noise	$329.95
1/4" phone (1)	1/4" (2), XLR (1)	Yes	Built-in tone shaping emulates Shure SM57 on or off-axis in front of a 12" guitar speaker; instrument/speaker input switch	$89.95
1/4" (1)	1/4" (2), XLR (1)	Yes		$49.95

DYNAMICS PROCESSORS

Manufacturer	Model	Type	Threshold	Ratio	Attack Times	Release Times	Gain Control
Alesis	3630 Compressor	Compressor/limiter/gate	-40 to +20 dB	1:1 to ∞:1	Auto or manual (0.1 to 200 ms)	Auto or manual (50 ms to 3 sec)	Output
Alesis	NanoCompressor	Compressor/limiter	-40 to +8 dB	1:1 to ∞:1	Auto or manual (0.1 to 200 ms)	Auto or manual (50 ms to 3 sec)	Output
Anthony DeMaria Labs	1000	Compressor/limiter	Fixed	3:1 to 12:1	Auto (10 µs)	Auto (0.07 sec)	Input
Anthony DeMaria Labs	1500	Compressor/limiter	Fixed	3:1 to 12:1	Auto (10 µs)	Auto (0.07 sec)	Input
Aphex Systems	105	4-channel logic-assisted noise gate	-50 to +20 dB	∞:1	Manual (200 µs to 250 ms)	Manual (150 ms to 4 sec)	None
Aphex Systems	106 Easyrider	4-channel compressor	Fixed	1:1 to 5:1 (program dependent)	Auto	Auto with two selectable ranges	Input, output
Aphex Systems	108 Easyrider	2-channel compressor	Fixed	1:1 to 5:1 (program dependent)	Auto	Auto with two selectable ranges	Input, output
Aphex Systems	320A Compressor	Compressor/leveler/limiter	Fixed	Leveler: 20:1; compressor: 1:1 to 3:1; limiter: ∞:1	Auto (1 µs to 2.5 sec)	Auto with two ranges of leveling release times	Output
Aphex Systems	622 Logic Assisted Expander/Gate	Expander/gate	-50 to +20 dB	Gate: ∞:1; expander: 1.2:1 to 10:1	Manual (10 µs to 100 µs)	Manual (40 ms to 5 sec)	None
Aphex Systems	651 Expressor	Compressor	-20 to +20 dB	1.1:1 to 50:1	Manual (0.05 to 100 ms)	Manual (40 ms to 4 sec)	Input, output
Aphex Systems	661 Expressor	Tube compressor	-30 to +20 dB	1.1:1 to 30:1 (manual); No-knee (auto)	Auto or manual (0.05 to 100 ms)	Auto or manual (40 ms to 4 sec)	Input, output
Aphex Systems	720 Dominator II	Peak limiter	-9 to +25 dB	∞:1	Auto	Auto and manual (150 ms to 7 sec)	Input
A.R.T.	Tube Compressor	Optical-electrical tube compressor	-40 to +10 dB	compressor: 2.3:1; limiter: 6:1	Auto/fast	Auto/fast	Output
A.R.T.	Dual Levelar	Optical-electrical tube compressor	-40 to +10 dB	compressor: 2.3:1; limiter: 6:1	Auto/fast	Auto/fast	Output
A.R.T.	Pro Gate	Noise gate	-50 to +16 dB	N/A	Manual (20 µs to 500 ms)	Manual (3 ms to 4 sec)	None
A.R.T.	Pro VLA	Optical-electrical tube compressor	-20 to +15 dB	2:1 to ∞:1	Auto/fast	Auto/fast	Output
A.R.T.	Tube PAC	Transformerless tube preamp/compressor	-20 to +20 dB	Compressor: 2.3:1; limiter: 6:1	Auto/fast	Auto/fast	Preamp input stage/output level
ARX	Sixgate	Gate	-50 to +10 dB	∞:1	Auto	20 ms to 2 sec	None
ARX	Quadcomp 2	Compressor/limiter	-40 to +20 dB	1:1 to ∞:1	Auto	Auto	Output
ARX	Afterburner	Compressor/limiter	-40 to +20 dB	1:1 to ∞:1	Auto	Auto	Output
ARX	DDP-1	Compressor/limiter/gate	-40 to +20 dB	1:1 to ∞:1	Auto	Auto	Output
Behringer	MDX 2100 Composer	Compressor/limiter/expander	Compressor: -40 to 20 dB; expander: -70 to +20 dB	Compressor: 1.2:1 (program dependent)	Compressor: manual; expander: preset	Manual	Output
Behringer	MDX 2400 Multicom	Compressor	-40 to +20 dB	1:1 to ∞:1	Auto	Auto	Output
Behringer	SNR 1000 Studio Denoiser	Noise reduction	-50 to +10 dBu	1:1 to 6:1	Auto	Manual (50 ms to 4 sec)	None
Behringer	XR 1400 Multigate	Gate	-40 to +10 dB	1:1 to 4:1	Auto	Manual (50 ms to 4 sec)	Output
Behringer	MDX 1200 Autocom	Compressor	-40 to +20 dB	1:1 to limit	0.1 to 200 ms	0.05 to 4 sec	Output
Behringer	SNR 2000 Multiband Denoiser	Noise reduction	-40 to +20 dBu	1:1 to 1:6	Auto	0.05 to 6 sec	Output
Bellari	RP282A	Tube compressor/limiter	-40 to 0 dB	2:1 to ∞:1	Manual (0.5 to 100 ms)	Manual (100 to 500 ms)	Output
Bellari	RP583	Tube compressor/limiter	-20 to +20 dB	2:1 to ∞:1	Manual (0.5 to 100 ms)	Manual (1 to 2 sec)	Output
beyerdynamic	Dynamax	Compressor/de-compressor/limiter/noise gate	Automatic	Automatic	Automatic	Automatic	Output -20 to +20 dB

Bypass Switch	Channels/ Stereo Link	Meter Type	Main I/O	Sidechain I/O	Dimensions	Special Features	Price
Yes	2/yes	12-segment LED	1/4"	1/4" TRS	19"x1.75"x4.5"	Hard/soft-knee switch; peak/RMS compression; gate with threshold and rate controls	$299
Yes	2/permanently linked	6-segment LED	1/4"	1/4" TRS	5.5"x1.75"x4.5"	Hard/soft-knee switch; peak/RMS compression	$119
No	Mono	VU	XLR	None	19"x3.5"x8"	All tube	$1,695
No	2/yes	VU	XLR	None	19"x3.5"x9"	All tube	$2,995
No	4/no	LED	1/4" TRS	External key input	19"x1.75"x5.2"	Logic assist ensures positive gating; no false triggering; easy setup; uses VCA 1001	$449
Yes	4/yes (in 2 pairs)	LED	1/4" TRS	None	19"x1.75"x5.2"	Wave-dependent compressor; sounds like slow attack with benefits of fast attack	$449
Yes	2/yes	LED	1/4" TRS	None	19"x1.75"x5.2"	Wave-dependent compressor; sounds like slow attack with benefits of fast attack	$299
Yes	2/yes	LED	XLR	None	19"x1.75"x10"	Patented dynamic verification gate; frequency-dependent leveler; dynamic release computer	$1,350
Yes	2/yes	LED	XLR	1/4"	19"x1.75"x5"	Logic assist ensures accurate positive gating	$795
Yes	Mono	LED	XLR	1/4"	19"x1.75"x9.5"	High-frequency expander maintains high frequency automatically	$495
Yes	Mono	LED	XLR, 1/4"	1/4"	19"x1.75"x10.25"	"Tubessence"; Easyrider auto mode; high-frequency expander	$749
Yes	2/yes	LED	XLR	None	19"x1.75"x10"	Brickwall limiter; 3-band patented automatic limit threshold	$1,350
Yes	Mono	LED	XLR, 1/4" TS	None	5.5"x1.5"x5"	Vactrol electro-optical tube compression	$169
Yes	2/yes	LED	XLR, 1/4" TS	None	19"x1.75"x5"	Vactrol electro-optical tube compression	$349
Yes	8/yes (all linkable)	None	1/4" TRS	1/4"	19"x3.5"x8"	Programmable; MIDI In/Out/Thru	$1,099
Yes	2/yes	LED, VU	XLR, 1/4" TRS	None	19"x3.5"x5"	Vactrol electro-optical tube compression	$649
Yes	Mono	LED	XLR, 1/4" TS	None	5.25"x8.5"x 6.5"	Vactrol electro-optical tube compression; +48V phantom power; +20 dB gain switch; phase control; internal transformer	$249
Yes	6	gate open LED, gate closed LED	1/4" TRS	1/4" TRS	19"x1.75"x6.5"	Six gates in 1 RU	$423
Yes	4/yes x2	7-segment LED gain reduction	XLR	1/4" TRS	19"x1.75"x6.5"		$523
Yes	2/yes	9-segment LED gain reduction, 9-segment output level	XLR, 1/4" TRS	1/4" TRS	19"x1.75"x6.5"	Enhance switch; switchable to dual band (lo/hi) mono mode	$461
Yes	2/yes	9-segment LED gain reduction, 9-segment output level	Balanced XLR and 1/4" TRS	1/4" TRS	19"x1.75"x6.5"	Massive headroom	$510
Yes	2/yes	LED	1/4"	1/4"	19"x1.75"x8.5"		$279.99
Yes	4/no	8-segment LED	XLR, 1/4"	N/A	19"x1.75"x8.5"		$369.99
Yes	2/yes	LED	1/4"	None	19"x1.75"x8.5"		$249.99
Yes	4/no	LED	1/4" TRS	1/4" TRS	19"x1.75"x8.5"		$299.99
Yes	2/yes	8-segment LED gain reduction	1/4" TRS inputs, 1/4" outputs	1/4" TRS	1.75"x19"x8.5"	"Auto" compression mode calculated program-dependent attack and release times in real time; expander/gate section; enhancer section	$189.99
Yes	2/yes	8-segment LED gain reduction	1/4" TRS inputs and XLR /1/4" TRS outputs	None	1.75"x19"x8.5"	"Auto" filter for faster setups; "IRC" expander/gate provides complete control over threshold and release settings with continuously variable maximum ratio	$369.99
Yes	2/yes	VU	XLR, 1/4"	1/4"	19"x3.5"x6"		$650
Yes	2/yes	VU	XLR, 1/4"	1/4"	19"x3.5"x6"		$650
Yes	Yes	20 digit LED	XLR, 1/4" TRS	Yes	N/A	Uses THAT 2181 VCA	$869

DYNAMICS PROCESSORS

Manufacturer	Model	Type	Threshold	Ratio	Attack Times	Release Times	Gain Control
BSS Audio	DPR402	Compressor/de-esser/limiter	-30 to +20 dBu	1:1 to ∞:1	Manual (50 µs to 80 ms)	Auto or manual (5 ms to 5 sec)	Output
BSS Audio	DPR404	Quad compressor	-30 to +20 dBu	1:1 to ∞:1	Auto	Auto	None
BSS Audio	DPR422	Dual compressor/de-esser	-30 to +20 dB	1:1 to ∞:1	Auto or manual (50 µs to 400 ms)	Auto or manual (5 ms to 5 sec)	Output
BSS Audio	DPR504	Quad gate	-50 to +20 dBu	N/A	Auto (20 µs or 40 µs to 5 ms) program dependent	Manual (1 ms to 3 sec)	None
BSS Audio	DPR522	Dual gate	-60 to +15 dB	N/A	Manual (20 µs to 1.5 sec)	Manual (1 ms to 3 sec)	None
BSS Audio	DPR901II	Dynamic equalizer	-30 to +20 dBu	N/A	Auto	Auto	None
BSS Audio	DPR944	Gate/compressor	Gate: -50 to +20 dB; comp: -30 to +20 dB	1:1 to ∞: 1 comp. only	Auto	Auto	Output
Crane Song	STC-8 Class A Compressor Limiter	Compressor/limiter	Auto	1:1 to 1:20	0.1 to 150 ms	Auto (40 ms to 10 sec)	Output
dbx	160A	Compressor	-40 to +20 dBu	1:1 to -1:1	Auto	Auto	Output
dbx	160S	Compressor/limiter	-40 to +10 dBu	1:1 to ∞:1	Auto or manual	Auto or manual	Output
dbx	165A	Compressor	-40 to +10 dB	1:1 to ∞:1	Auto or manual	Auto or manual	Output
dbx	166A	Compressor/limiter	Expander: -∞ to +15 dBu; compressor: -40 to +20 dBu; limiter: 0 to +20 dBu	1:1 to ∞:1	Auto	Auto	Output
dbx	262	Compressor/limiter	-40 to +20 dBu	1:1 to -1:1	Auto	Auto	Output
dbx	266XL	Compressor/expander/gate	-40 to +20 dB; expander: -60 to +10 dB	1:1 to ∞:1	Auto or manual	Auto or manual	Output
dbx	1046	Quad compressor/limiter	-40 to +20 dBu	1:1 to ∞:1	Auto	Auto	Output
dbx	1066	Compressor/limiter/ expander/gate	Expander/gate: 0 to +15 dBu; compressor: -40 to +20 dBu; limiter: 0 to +24 dBu	Expander/gate: 1:1 to 30:1; compressor: 1:1 to ∞:1	Auto or manual (0.05 to 100 ms)	Auto or manual (0.05 ms to 5 sec)	Output
DigiTech	UCS-1 Dual Tube Dynamics Processor	Tube compressor/gate/ limiter/de-esser	Gate: -60 to +20 dB; de-esser: -40 dB to off; limiter: 0 dB to off; compressor: -40 to +20 dB	1:1 to ∞:1	Compressor: manual (0.1 to 200 ms)	Compressor: manual (50 ms to 3 sec)	Input, output
DOD	SR866	Gated compressor/limiter	-40 to +20 dBu	1:1 to ∞:1	Manual (0.1 to 100 ms)	Manual (50 ms to 2.5 sec)	Input, output
DOD	SR 410	PA/monitor processor	-10 to +20	Fast / slow	2 to 18 ms	20 to 180 ms	±12 dB
Drawmer	DL241/DL241XLR	Dual compressor/limiter	Compressor: -40 to +20 dB; expander/gate; -70 to +20 dB; limiter: 0 to +18 dB	1.2:1 to ∞:1	Auto or manual (0.5 to 100 ms)	Auto or manual (0.05 to 4 sec)	Input, output
Drawmer	DL251	Dual-channel "spectral" compressor	Compressor: -40 to +20 dB; limiter: 0 to +18 dB	1.2:1 to ∞:1	Auto or manual (0.5 to 100 ms)	Auto or manual (0.05 to 5 sec)	Input, output
Drawmer	DL441	Quad compressor/limiter	Compressor: -40 to +20 dB; limiter: 0 to +18 dB	1.2:1 to ∞:1	Auto (0.5 to 100 ms)	Auto (0.05 to 4 sec)	Input, output
Drawmer	DS201B	Dual noise gate	-54 to +∞ dB	N/A	Manual (10 µs to 1 sec)	Manual (2 ms to 4 sec)	None
Drawmer	DS404	Quad noise gate	-70 dB to +20 dB	N/A	Auto	Combines hold and decay (10 ms to 5 sec)	None

Bypass Switch	Channels/ Stereo Link	Meter Type	Main I/O	Sidechain I/O	Dimensions	Special Features	Price
Yes	2/yes	5/9/12-segment LED	XLR	Barrier strip	19"x1.75"x9"	Subtractive gain-reduction system for ultralow distortion; knee law varies with compression ratio; auto attack and release modes; broad-band de-essing/HF de-essing; monitor sidechain function	$1,599
Yes	4/yes	15/8-segment LED	XLR	1/4"	19"x1.75"x11"	HF de-essing (variable); 2-speed attack and release; progressive knee	$1,449
Yes	2/yes	5/6-segment LED	XLR	1/4"	19"x1.75"x8"	Progressive knee; de-esser (broad-band, HF)	$899
Yes	4/yes	12-segment LED	XLR	1/4" TRS	19"x1.75"x11"	Key-listen facility; external key-source facility; sidechain filter	$1,449
Yes	2/yes	3/9-segment LED	XLR	1/4"	19"x1.75"x8"	Key listen; check key; Auto Dynamic Enhancement; key filter	$799
Yes	1 mono/2 split	10-segment LED	XLR	None	19"x1.75"x9"	Above or below threshold control; shelving EQ; filter defeat; 1 & 2-channel split mode; sidechain key-listen facility; filter width control; fast or slow release; provides variable compression/expansion (-30 to +16 dB)	$1,549
Yes	4/yes	12-segment LED	XLR	1/4" TRS (gate only)	19"x1.75"x7.1"		$899
Yes	2/yes	16-segment LED	XLR	DB15	19"x3.5"x12"	Soft knee; dual sidechain; selectable program dependent release	$3200
Yes	Mono	LED	XLR, 1/4"	1/4" TRS	1U	Switchable hard/soft/OverEasy; contour button; mode switch on limiter; slow/fast attack	$459.95
Yes	2/yes	VU	XLR, 1/4" TRS	XLR, 1/4" TRS	2U	Peak Stop/Peak Stop Plus switch; 127 dB dynamic range; V8 VCA; optional 24-bit digital output (AES/EBU and S/PDIF simultaneous)	$2,495
Yes	Mono	VU	Barrier strip	None	2U	Peak Stop limiter (threshold -2 to +24 dB)	$1499.95
Yes	2/yes	19-segment LED	XLR, 1/4" TRS	1/4" TRS	1U	Switchable hard knee/OverEasy	$329.95
Yes	2/yes	LED	1/4" TRS	None	1U	Hard knee, soft knee, OverEasy	$159.95
Yes	2/yes	LED	XLR, 1/4" TRS	1/4" TRS	1U	Hard knee, soft knee, OverEasy	$249.95
Yes	4/yes	LED	XLR, 1/4" TRS	None	1U	Hard knee/OverEasy switch	$649.95
Yes	2/yes	LED	XLR, 1/4" TRS	1/4" TRS	1U	Sidechain monitor; OverEasy; auto switch	$549.95
Yes	2/yes	VU	XLR, 1/4" TRS	1/4" TRS	19"x3.625"x5.875"	Hard- or soft-knee threshold; manual or auto timing	$999.95
Yes	2/yes	LED	1/4", RCA	1/4" TRS	19"x1.75"x7.5"	Soft knee	$239.95
Yes	1 channel	4-segment LEDs	XLR, 1/4" TRS	1/4" and XLR thru output	19"x1.75"x4.5"	2 match filters ranging from 40 Hz–4 kHz and 200 Hz–20 kHz	$299.95
Yes	2/yes	8-segment LED on compressor output, 8-segment LED on gain reduction, gate on/off	1/4" (DL241), XLR (DL241XLR)	None	19"x1.75"x7"	"Program Adaptive" expander/gate; "Zero Response Time" peak limiter; switchable auto/manual attack/release	$699 (DL241), $735 (DL241XLR)
Yes	2/yes	8-segment LED output, 9-segment LED gain reduction, enhance on/off LED	XLR	1/4" TRS	19"x1.75"x7"	High-frequency dynamic expander plus compressor; "Zero Response Time" peak limiter; hard-knee/soft-knee switch	$1,050
Yes	4/yes	5-segment LED output, 8-segment LED gain reduction, limiter on/off LED	XLR	None	19"x1.75"x7"	"Zero Response Time" peak limiter; hard/soft knee compressor switch.	$1,099
Yes	2/yes	3-segment "traffic light" LEDs	XLR	1/4" key input	19"x1.75"x7"	Frequency-sensitive gating w/HP & LP filters; "hold" and "decay" controls; key-listen function; ducker switcher; variable trigger stabilization to prevent chatter; attenuation of 0 to -80dB	$735
Yes	4/yes	3-segment "traffic light" LED per channel	XLR	1/4" key input	19"x1.75"x7"	Frequency-sensitive gating w/HP & LP filters; hard/soft gate (downward expander) switch; -20/-90 range switch	$1,099

DYNAMICS PROCESSORS

Manufacturer	Model	Type	Threshold	Ratio	Attack Times	Release Times	Gain Control
Drawmer	MX30	Dual gate/auto compressor/limiter	Compressor: -40 to +20 dB; expander/gate: -70 to +20 dB; limiter: 0 to +18 dB	1.2:1 to ∞:1	Auto or manual (0.5 ms to 100 ms)	Auto or manual (0.05 to 4 sec)	Output
Drawmer	MX40	Quad noise gate	-54 to +∞ dB	N/A	10 µs	2 ms to 4 sec	None
Drawmer	1960	Dual channel tube compressor/ tube preamp	+∞ to -24 dB	1.1:1 to 30:1	Manual or auto, 0.5 ms to 20 ms	Manual or auto, 200 ms to 20 sec	Input, output
Empirical Labs	EL-8 Distressor	Compressor/limiter	Varies with input level	1:1 to ∞:1	Manual (<40 µs to 50 ms)	Manual (0.05 to 3.5 sec)	Input, output
Focusrite	Green 3 Voicebox MKII	Mic amp/EQ/dynamics	Compressor: -24 to +12 dB; de-esser: 0 to -20 dB	1:1.5 to ∞	33 µs	33 ms or variable	Output
Focusrite	Green 4 Dual Compressor/Limiter	Compressor/limiter	Compressor: -24 to 12 dB; limiter: 0 to 26 dB	1.5:1 to 10:1	0.3 ms to 100 ms	0.1 to 4 sec (or auto-program dependent)	Output
Focusrite	Green 5 Channel Strip	EQ/dynamics	Expander/gate: -40 to + 10 dB; compressor: -24 to 12 dB	1.5:1 to 10:1	0.3 ms to 100 ms	0.1 to 4 sec	Output
Focusrite	Green 6 Quad Compressor/Limiter	Compressor/limiter	Compressor: -24 to 12 dB; limiter: 0 to 26 dB	1.5:1 to 10:1	Switchable from 300 ms to 5 ms	0.1 to 4 sec, or auto	Output
Focusrite	Red 3 Dual Compressor/Limiter	Compressor/limiter	Compressor: -24 to 12 dB; limiter: 0 to 18 dB	Switchable 1:1.5, 2, 3, 5, 7, 10	300 µs to 90 ms	Variable 100 ms to 4 sec	Output
Focusrite	Blue 330 Stereo Mastering Compressor/Limiter	Compressor/limiter	Compressor: -6 to 16 dB; limiter: 0 to 22 dB	1.2:1 to 20:1	300 µs to 100 ms	100 ms to 4 sec or auto	Output
Furman	C-128 Compressor/Limiter	Compressor	-22 to +22 dB	2:1 to 50:1	Manual (50 µs to 50 ms)	Manual (50 ms to 1.1 sec)	Output
Furman	LC-6 Stereo Compressor/Gate	Compressor/noise gate	Compressor: -20 to +20 dB; gate: -∞ to +20 dB	1.4:1 to >50:1	Compressor: manual (100 µs to 1 sec); gate: preset (1 ms)	Compressor: manual (0.05 to 5 sec); gate: preset (250 ms)	Input, output
Furman	QN-44 Quad Noise Gate	Noise gate	-∞ to +20 dB	50:1	Manual (50 µs to 50 ms)	Manual (50 ms to 5 sec)	None
Groove Tubes	CL1S	Stereo tube compressor/limiter	to + 20 dB	2:1 to 12:1	Variable	Variable	Variable
Independent Audio	Calrec RQ 3200	Pre-amplifier/EQ/ compressor/expander/gate	N/A	2:1	4 ms; Fast 0.2 ms	75 ms to 4 sec variable	Input, output
Independent Audio	Calrec RQD 6400	Twin compressor/limiter	N/A	100:1	Normal: 4 ms; Fast: 0.2 ms	0.1 to 4 sec variable; with auto facility 0.1 to 1.5 sec	24 dB
Inward Connections	TLM-1 Tube Limiter	Compressor/limiter	-40 dB to +31 dB	1:1 to 20:1	10 µs	0.07 sec to 3.0 sec.	Output
JBL	M644	4-channel noise gate	-60 to +20 dBu	N/A	Manual (50 µs to 25 ms)	Manual (50 ms to 5 sec)	Output
JBL	M712 Two Channel Gating Compressor/Limiter	Compressor/limiter	-60 to +20 dBu	1:1 to 165:1	Compressor: manual (1 to 100 ms); gate: auto (470 µs)	Compressor: manual (100 ms to 1.5 sec); gate: auto (95 ms)	Output
Joemeek	SC-2	Compressor	Varies with input signal	4.5:1 to 7:1	Manual (1.5 to 10 ms)	Manual	Input, output
Kensington	CLX 51	Compressor/limiter	-40 to +22 dBu	2:1 to ∞:1	Manual (200 µs to 20 ms)	Manual (100 ms to 3 sec)	Input, output
Kensington	CLX 52	Dual-channel compressor/limiter	-40 to +22 dBu	2:1 to ∞:1	Manual (200 µs to 20 ms)	Manual (100 ms to 3 sec)	Input, output
Klark-Teknik	DN500	Dual compressor/ limiter/expander	Compressor: -30 to + 20 dB; expander: -40 to +20 dB	Compressor: 1:1 to 50:1; expander: 1:1 to 25:1	Auto or manual (50 µs to 20 ms)	Auto or manual (60 µs to 2 sec)	Output

Bypass Switch	Channels/ Stereo Link	Meter Type	Main I/O	Sidechain I/O	Dimensions	Special Features	Price
Yes	2/yes	8-segment LED on compressor output, 9-segment LED on gain reduction, 2-segment on gate on/off, limiter on/off LED	XLR, 1/4"	None	19"x1.75"x7"	"Program Adaptive" expander/gate; "Zero Response Time" peak limiter	$479
Yes	Yes (1 & 2, 3 & 4)	3-segment "traffic light" LED's	XLR	1/4" key input	19"x1.75"x7"	Frequency sensitive gating w/1 octave tunable filter (50 Hz to 8 Khz); key listen function; selectable -20 or -90 dB attenuation; "Trigger Stabilization" to prevent chatter; Peak Punch feature	$629
Yes	Yes	VU meter each channel	XLR	Yes	19"x3.5"2x7"	2-channel classic tube compressor with tube based VCA; tube mic preamps and front panel line/instruments preamp with EQ	$2,349
Yes	Mono or 2/yes	LED	XLR, 1/4"	1/4"	19"x1.75"x10.1"	Emulation of classic compressors (LA2, LN1176 Fairchild, etc.)	$1,395 (mono), $2,695 (stereo)
Yes	1/yes	10-segment LED	XLR	N/A	19"x 1.75"x5.75"	EQ, compressor, de-esser, expander	$1,349
Yes	2/yes	10-segment LED	XLR	N/A	19"x1.75"x5.75"	Hard/soft knee and high/lowpass filter switches	$1,599
Yes	1/yes	10-segment LED	XLR	N/A	19"x 1.75"x5.75"	De-esser, compressor, expander/gate	$1,599
Yes	4/yes	None	XLR	N/A	19"x1.75"x5.75"	Auto or manual release	$1,349
Yes	2/yes	VU	XLR	N/A	19"x3.5"x11.25"	Stereo switch; auto-release mode	$3,995
Yes	2/yes	Peak program	XLR	N/A	19"x5.25"x12.5"	Look-ahead limiter	$7,750
No	Mono	10-segment LED	1/4" (XLR optional)	1/4"	19"x1.75"x8"	Adaptive knee (soft for gradual compression; becomes harder as ratio is increased)	$269 ($303 with XLRs)
No	2/yes	5-segment LED	1/4" (XLR optional)	1/4"	19"x1.75"x8"	Adaptive knee (soft for gradual compression; becomes harder as ratio is increased)	$439 ($507 with XLRs)
No	4/no	LED	1/4" (XLR optional)	1/4"	19"x1.75"x8"	Depth controls adjust amount of muting	$429 ($565 with XLRs)
Yes	Yes	VU gain reduction	XLR, 1/4"	1/4"	19"x15"x1.75"	Opto-electrical, all tube design	$2,495
Yes	1/yes	20-segment LED	XLR	XLR	19"x1.75"x12"		$3,935
Yes	2/yes	20-segment LED	XLR	XLR	19"x1.75"x13.5"	Compressor/limiter stereo	$3,765
Yes	2/yes	VU	XLR, 1/4" TRS	No	One of four modules that fits into a 19"x5.25"x12" rack		$879
No	4/no	LED	1/4" TRS	1/4"	19"x1.75"x5.625"	30 Hz highpass filter; external ground-link terminals	$515
Yes	2/yes	8-segment LED	XLR, 1/4"	1/4"	19"x1.75"x5.625"	Soft-knee compression; 30 Hz highpass filter; external ground-link terminals	$515
Yes	2/yes	VU	XLR, 1/4" TRS	None	19"x3.5"	Vintage photo-optical compressor sound; adds warmth and sparkle	$1,999.99
Yes	Mono	11-segment LED	XLR, 1/4"	1/4"	19"x1.75"x6"	"Infinite soft knee" characteristic and timing based on compression ratio; extremely low noise and distortion; internal power supply	$349
Yes	2/yes	11-segment LED	XLR, 1/4"	1/4"	19"x1.75"x6"	"Infinite soft knee" characteristic and timing based on compression ratio; extremely low noise and distortion; internal power supply	$499
Yes	2/yes	LED	XLR	1/4" TRS	19"x1.75"x11.5"	Hard or soft knee (variable knee); advanced VCA design for extremely low noise and distortion; variable-ratio expander for gentle expansion or hard gating	$1,244

DYNAMICS PROCESSORS

Manufacturer	Model	Type	Threshold	Ratio	Attack Times	Release Times	Gain Control
Klark-Teknik	DN504	Quad compressor/limiter	-30 to +20 dB	1:1 to 50:1	Auto or manual (50 µs to 20 ms)	Auto or manual (60 µs to 2 sec)	Output
Klark-Teknik	DN514	Quad auto gate	-40 to +20 dBm	N/A	Program dependent, semiautomatic (50 to 200 µs or 500 µs to 2 ms)	Manual (40 ms to 2 sec)	None
Manley Labs	Langevin Electro- Optical	Leveling amp	-8 to +17 dBm	10:1	Preset (1.5 ms)	Preset (250 ms)	Output
Manley Labs	Stereo Electro-Optical	Stereo electrical-optical	-8 to +17 dBm	10:1	Preset (1.5 ms)	Preset (250 ms)	Output
Manley Labs	Stereo Variable MU	Tube compressor/limiter	-32 to +14 dBm	2:1 to 20:1	Manual (25 to 70 ms)	Manual (0.2 sec, 0.4 sec, 0.6 sec, 4 sec, 8 sec)	Input, output
Peavey	XG5	Noise gate	-70 to +5 dBV	N/A	Auto	Manual (30 ms to 2 sec)	None
Phonic Hi-Tech	PCL3200	Compressor/limiter/gate	-40 to +20 dB	1:1 to ∞:1	Manual (0.1 to 200 ms)	Manual (50 ms to 3 sec)	Output
PreSonus	ACP-88	8-channel compressor/ limiter/gate	-60 to +20 dBu	1:1 to 20:1	Auto or manuals (0.1 to 200 ms)	Auto or manual (50 ms to 3 sec)	Output
PreSonus	Blue Max	Smart compressor/ limiter	Fixed (-10 dB) Manual mode	1:1 to 20:1	Manual (0.01 to 100 ms)	Manual (10 to 500 ms)	Input, output
PreSonus	ACP-22	Stereo compressor/limiter/ spectral gate	-40 dB to +20 dB	1:1 to 20:1	Auto or manual (compressor: 0.1 to 200 ms; gate: 10 µs to 100 ms)	Auto or manual (50 ms to 3 sec)	Output
PreSonus	DCP-8	8-channel dynamics processor	-50 to +20 dB	1:1 to 20:1	Preset (200 µs)	Auto	Output
Rane	DC24	Compressor/limiter/expander/ gate 2-way crossover	-50 to +20 dB	1:1 to 20:1	Auto	Auto	Output
Rolls	RP252	Compressor/limiter/gate	-40 to +12 dB	1:1 to ∞:1	Manual (0.2 to 10 ms)	Manual (40 ms to 2 sec)	Output
Rolls	LA120	Tube compressor/limiter	-40 to 0 dB	2:1 to ∞:1	Program dependent	Program dependent	Output
Summit Audio	TLA-100A Tube Levelling Amplifier	Tube compressor/limiter	-25 to +25 dBu	1:1 to 4:1	Selectable (fast, medium, slow)	Selectable (fast, medium, slow)	Output
Summit Audio	DCL-200 Dual Compressor/Limiter	Tube compressor/limiter	-27 to +25 dBu	1:1 to 7:1	Manual (0.1 to 100 ms)	Manual (35 ms to 10 sec)	Output
Symetrix	562E Windowing Expander/Gate	Gate/expander	-40 to +20 dB	Gate: ∞:1; expander: 1:1 to 3:1	Adjustable (auto to 300 ms)	Manual (30 ms to 2 sec)	None
Symetrix	565E Dual Compressor/ Limiter/Expander	Compressor/limiter/ expander	Compressor: -40 to +20 dBu; expander: +10 to -40 dBu; limiter: -10 to +20 dBu	Compressor: 1:1 to 10:1; expander: 1:1.5; limiter: 20:1	Compressor: preset; limiter: preset (100 µs); expander: preset (4 ms)	Compressor: Program dependent, adjustable 180 ms–2.55 sec; limiter: preset (100 ms); expander: 250 ms–5 sec	Output
TC Electronic	Finalizer Plus	Compressor: multiband, digital mastering processor	-25 to 0 dBu	1.12:1 to ∞:1	Manual (0.3 to 100 ms per band)	Manual (20 ms to 7 sec per band)	Input, output
TC Electronic	DB MAX II	Compressor: 5-band digital mastering processor	-25 to 0 dBu	1.12:1 to ∞:1	Manual (0.3 to 100 ms per band)	Manual (20 ms to 7 sec per band)	Input, output
TC Electronic	MEC-1A	Mic-pre/EQ/compressor	-20 to off	1.5:1 to 10:1	1 ms to 100 ms	60 ms to 2 sec	10–50 dB
TC Electronic	CL-1B	Opto-cell compressor	+20 to -40 dBm	2:1 to 10:1	Fast, slow	Fast, slow	Off to +30 dB
TC Electronic	LCA-2B	Stereo compressor/limiter	Off to -10 dBu	1.6:1 to 20:1	0.3 to 70 ms	0.07 to 2 sec	-6 dB to +10 dB
TL Audio	C5021	Tube compressor	-20 to +20 dBu	1.5:1 to 3:1	Auto	Auto	Input
Voce	EVC-1	Tube compressor	-∞ to +20 dBu	1.1 to 10:1	Manual (1 to 1000 ms)	Manual (1 to 1,000 ms)	Output

Bypass Switch	Channels/ Stereo Link	Meter Type	Main I/O	Sidechain I/O	Dimensions	Special Features	Price
Yes	4/yes	LED	XLR	1/4" TRS	19"x1.75"x11.5"	Hard or soft knee (switchable); advanced VCA design for extremely low noise and distortion	$1,396
Yes	4/yes	LED	XLR	1/4"	19"x1.75"x11.5"	Unique sync function synchronizes harmony parts, brass sections, etc. by interlocking all four gate release times	$1,144
Yes	Mono	VU	XLR, 1/4"	None	19"x1.72"	All discrete	$1,775
Yes	2/yes	VU	XLR, 1/4"	None	19"x3.5"	LA-2A style	$2,500
Yes	2/yes	VU	XLR	None	19" x 3.5"	All tube; fully differential	$4,000
Yes	5/no	LED	1/4"	None	19"x1.72"	Internal power supply	$199.99
Yes	2/yes	LED	1/4"	1/4"	19"x2"x4.5"	Hard and soft knee, peak RMS switch	$249
Yes	8/yes	LED	1/4" TRS	1/4" TRS	19"x3.5"x6"	Hard/soft knee; selectable input (+4 dBu/-10 dBu); comprehensive linking bus; full-featured gate	$999.95
Yes	2/yes	LED	1/4" TRS	1/4" TRS	19"x1.75"x8"	Stereo; 15 preset compression curves for various instruments, including vocals, drums, guitar, bass, keyboards, effects	$249.95
Yes	2/yes	8-segment LED	XLR, 1/4"	1/4" TRS	19"x1.75"x5"	Hard/soft knee; frequency-dependent lowpass filter for gate	$399
Yes	8/yes	None	1/4" TRS	None	19"x1.75"x8.65"	Eight channels of VCA automation of levels, mutes, and compression/gate parameters; 100 audio scenes programmable; MIDI compatible; optional meter bridge ($399.95)	$1,199.95
Yes	2/yes	LED	XLR, 1/4" TRS	1/4" TRS	19"x1.75"x5.3"	Combine Crossover mode allows you to process channel 1 and channel 2 independently and then sum them together; input switchable -10 dBV/+4 dBu	$599
Yes	2/yes	10-segment LED	XLR, 1/4"	1/4"	19"x1.75"x6"		$275
Yes	1	VU	XLR, 1/4"	No	7.6"x1.6"x5.4"		$160
Yes	Mono	VU meter (measures output level and gain reduction)	XLR	1/4" TRS	19"x3.5"x10.5"	Soft-knee transition characteristic; Jensen 990 output; transformerless signal path	$1,700
Yes	2/yes	VU	XLR	1/4"	19"x3.5"x10.5"	Soft-knee transition characteristic; Jensen 990 output stage; balanced or unbalanced	$2,950
Yes	2/no	LED	XLR, 1/4"	1/4"	19"x1.75"x8"	Window Advance; Auto-Windowing	$579
Yes	2/yes	LED	XLR, 1/4"	1/4"	19"x1.75"x7.25"	Dynamics Squared circuitry	$399
Yes	2/yes	LED	XLR, AES/EBU, S/PDIF, ADAT, Toslink	None	19"x1.75"x8.2"	Digital radiance generator/tube emulation; Normalize function for gain optimization; 3-band expander, compressor, and limiter; digital ceiling control, dithering; fade tool; 24-bit A/D D/A external device insert; sample rate conversion	$2,895
Yes	2/yes	LED	XLR, AES/EBU, S/PDIF, ADAT, Toslink	None	19"x1.75"x8.2"	4 inserts; production/transmission presets; external device insert; sample rate conversion	$3,995
EQ in/out	Yes	VU	XLR, 1/4, I/Os	N/A	19"x 2 units x 205 mm	All switches are gold plated	$3,995
Yes	Yes	VU	Analog	N/A	19"x 2 units x 170 mm	Input and output are balanced and fully floating	$2,195
Yes	Yes, either internally or to other LCA-2Bs	LED	Analog	Analog	19"x 2 units x 205 mm	Fairchild 670 attack/release presets	$3,495
Yes	2/yes	VU	XLR, 1/4"	1/4" TRS	19"x3.5"x10"	Soft-knee tube compression	$699
Yes	Mono	LED	XLR, 1/4" TRS	1/4" TRS	8"x8.5"x1.625"	Soft knee; no solid-state devices in the audio path; transformer inputs/outputs; power supply can power 1 or 2 units	$799 ($299 power supply)

EFFECTS PROCESSORS

Manufacturer	Model	Presets (Factory/User)	Analog Effects	Digital Effects	Simultaneous Effects	Programmable Wet/Dry Mix	Compare/ Bypass	Maximum Delay Time	Maximum Pitch Shift Range	MIDI Real-Time Control	Simultaneous MIDI Controllers
A.R.T.	FX-1	60/0	None	Reverb, chorus, delay, flange, pitch shift, tremolo, panner	3	Manual	Bypass	420 ms	1 octave	No	None
A.R.T.	Quadra/FX	100/100	None	Reverb, chorus, delay, flange, pitch shift, phaser, rotary speaker, tremolo, panner	4	s	Bypass	5.5 sec	2 octaves	Yes	16
Alesis	MicroVerb 4	100/100	None	Reverb, chorus, delay, flange, rotary, pitch shift, multi/dual	3	No	Bypass	1,300 ms	±1 octave	Yes	2
Alesis	MidiVerb 4	128/128	None	Reverb, chorus, delay, flange, rotary, pitch shift, multi/dual	3	Yes	Yes	1,300 ms	±1 octave	Yes	2
Alesis	NanoVerb	16/0	None	Reverb, chorus, delay, flange, rotary, multi effects	3	No	Bypass	1,300 ms	N/A	No	None
Alesis	Q2O Professional 20-Bit Master Effects Processor	100/200	None	Extensive selection of EQ, pitch, delay and reverb effects	8	Yes, per program	Yes	5 sec	±1 octave	Yes	Yes
Alesis	Wedge	128/128	None	Hall/room/plate reverb, chorus, flange, rotary, pitch shift, multi/dual	3	Yes	Yes	5,500 ms	±1 octave	Yes	2
Audio Centron	FXP	50/50	None	Reverb, chorus, delay, flange, gated reverb	3	Yes	Yes	1,050 ms	N/A	No	None
Audio Centron	TFX1-SP	32/0	None	Reverb, delay, flange, chorus, gated reverb, rotary speaker simulation	2	No	No	455 ms	N/A	No	None
Behringer	EX 3100 Ultrafex II	None	Enhancer	Spectral enhancer	1	No	Bypass	N/A	N/A	No	None
beyerdynamic	Vitalizer MKII	None	Audio enhancer	None	4	No	Yes	N/A	N/A	No	None
DigiTech	Studio 400	191/100		Reverbs, chorus, delay, flange, analog delay simulator, etc.	8	Yes	Yes	2,800 ms	±2 octaves	Yes	8 per program
DigiTech	Studio Quad V2	180/100	None	Reverbs, chorus, delay, flange, analog delay simulator, etc.	4	Yes	Yes	1,400 ms	±2 octaves	Yes	8 per program
DOD	D-12 Stereo delay/24-second sampler	None	None	Sampling, delay, chorus, flange	4	Yes	No	4 banks of 6 sec sampling or 2 banks of 12 sec sampling	N/A	N/A	None
DOD	Dimension 3 - D-3 2 in/2 out multi-effects processor	None	None	Delay, reverb, chorus, flange, phase, pitch, tremolo, rotary speaker, pan, detune	2	Manual	No	500 ms	±2 octaves	No	None
DOD	Dimension 6 - D-6 2 in/2 out stereo multi-effects processor	None	None	Delay, reverb, chorus, flange, phase, pitch, tremolo, rotary speaker, pan, detune	4	Manual	No	500 ms	±2 octaves	No	None
DOD	G-10 Guitar FX processor/ preamp	30 user / 30 factory	Distortion, compression, EQ, noise gate	Chorus, flange, ring mod., phase, tremolo, detune, pitch, delay, reverb, pixellator	7	No	Bypass	500 ms	±2 octaves	Accepts MIDI program changes	None
DOD	SR 400D Room Delay	30	None	Delay	1	No	No	4 sec	N/A	No	None
Eventide	DSP4000 Ultra-Harmonizer	491/unlimited via removable PCMCIA SRAM card	None	Yes	147	Yes	Yes	10 sec	±4 octaves	Yes	Yes

Discrete Processing Channels	ADC/DAC	Fry Warning	Inputs	Outputs	Power Supply	Special Features	Price
2	16-bit/16-bit	Clip light	1/4" (2)	1/4" (2)	External		$159
4	20-bit/20-bit	6-segment LED	1/4" (4)	1/4" (4)	External	Dynamically controlled effects; DEA technology; dual 24-bit multiplier; 56-bit internal accumulator	$349
2	18-bit/18-bit	4-segment LED	1/4" (2)	1/4" (2)	Alesis P3 adapter	Bypass/tap-tempo footswitch jack, two parameter knobs	$299
2	18-bit/18-bit	18-segment LED, clip light	1/4" (2)	1/4" (2)	Alesis P3 adapter	Auto level sensing; tap tempo from footswitch	$399
No	18-bit/18-bit	Clip light	1/4" (2)	1/4" (2)	Alesis P3 adapter	Adjust knob; bypass footswitch	$179
2	20-bit/20-bit	3-segment LED, clip light	1/4" TRS, XLR (2)	1/4" TRS, XLR (2)	50–60Hz, 90–250 VAC	ADAT optical	$699.95
2	18-bit/18-bit	18-segment LED, clip light	1/4" (2)	1/4" (2)	Alesis P4 adapter	4 real-time edit sliders; console-top design; impulse audition	$499
2 in/2 out	1-bit, sigma-delta/16-bit, 64x oversampled	Signal/peak LED	1/4" (2)	1/4" (2)	External	Edit up to 15 parameters per program; optional footswitch controls: program increment, program decrement, bypass, tap delay	$289
2 in/2 out	1-bit, sigma-delta/16-bit, 64x oversampled	Signal/peak LED	1/4" (2)	1/4" (2)	External	32 features; 1 adjustable parameter per program	$179
2	N/A	8-segment LED	1/4", XLR	1/4", XLR balanced	Internal	Surround processor; bass shift (50 or 100 Hz); treble control (1 kHz to 8 kHz); noise reduction	$329.99
No	No	Yes	XLR, 1/4"	Same	110 VAC	Low, mid, high freq. enhancement and stereo expansion	$699
4	18-bit, 128x oversampled sigma-delta stereo/20-bit, 64x oversampled	Digital level, clip meter	1/4" TRS (2), XLR (2)	1/4" TRS (2), XLR (2)	Internal	Dynamic modifiers, optional digital I/O upgrade (AES/EBU, S/PDIF)	$869.95
4	18-bit, 128x oversampled sigma-delta stereo/20-bit, 64x oversampled	Digital level, clip meters	1/4" (1)	1/4" (1)	External	Dynamic modifiers	$549.95
4	16-bit/16-bit	Clip LEDs	2	2	External	Reverse playback and LED; jog / shuttle wheel	$279.95
2	16-bit/16-bit	Clip LED	1/4" (2)	1/4" (2)	External	Noise reduction w/ gate threshold	$159.95
4	16-bit/16-bit	Clip LED	4	4	External	Noise reduction w/ gate threshold	$279.95
1	16-bit	Clip LEDs	1	3	External	Built-in chromatic tuner, headphone rack	$299.95
2	18-bit/16-bit	Clip LEDs	XLR and 6-pin barrier strip	XLR and 6-pin barrier strip	External	Data input in U.S. or metric formats of distance, humidity, temperature	$499.95
2	18-bit	10-segment clip light	1/4" unbalanced analog, XLR balanced, AES/EBU & S/PDIF digital	XLR balanced, AES/EBU & S/PDIF digital	50 watts, 100-130 volts or 200-240 volts AC, 50/60 Hz		$4,995

EFFECTS PROCESSORS

Manufacturer	Model	Presets (Factory/User)	Analog Effects	Digital Effects	Simultaneous Effects	Programmable Wet/Dry Mix	Compare/ Bypass	Maximum Delay Time	Maximum Pitch Shift Range	MIDI Real-Time Control	Simultaneous MIDI Controllers
Eventide	DSP4500 Limited Edition Ultra-Harmonizer	1017/unlimited via removable PCMCIA SRAM card	None	Yes	147	Yes	Yes	87 sec mono, 43.5 sec stereo	±4 octaves	Yes	Yes
Eventide	H3000D/SE	570/430	None	Pitch, reverb, delay, flange, phase, chorus, multitap, compressor	2	Yes	Bypass	1,500 ms	±3 octaves	Yes	Yes
Eventide	H3000D/SX Dynamic Studio Ultra-Harmonizer	284/716	None	Yes	15 preset algorithms	Yes	Compare	1,500 ms	±3 octaves	Yes	Yes
Eventide	H3500DFX/E Dynamic Ultra-Harmonizer	676/324	None	Yes	23	Yes	Bypass	95 sec in mono, 47.5 in stereo	±3 octaves	Yes	Yes
Independent Audio	CEDAR CRX Decrackle	None	None	Digital decrackle	None	None	Yes	N/A	N/A	No	None
Independent Audio	CEDAR DCX Declicker	None	None	Digital declicking	None	None	Yes	N/A	N/A	No	None
Independent Audio	CEDAR DHX Dehiss	None	None	Digital dehissing	None	None	Yes	N/A	N/A	No	None
Independent Audio	Mutronics Mutator (MIDI)	None	Envelope follower	None	Envelope follower and LFO	No	Yes	N/A	N/A	Yes	None
KAWAI	Kawai RV-4	50/50	None	19 types	4 stereo	Yes	Bypass	2700 ms	N/A	Yes	None
Korg	AM8000R	0/128	None	40 internal	4	Yes	Yes	1,800 ms mono/ 800 ms stereo	±2 octaves	Yes	8
Korg	DL8000R	0/128	None	8 delay taps	8	Yes	Yes	10,000 ms mono / 5,200 ms stereo	N/A	Yes	16
Korg/ Toneworks	AX300B	60/32	None	Stereo modulation, random step filter, sweep modulation, delay, pitch shift, octave, auto wah, etc.	7	Yes	Yes	1,000 ms	1 octave	No	None
Korg/ Toneworks	AX300G	100/32	None	Compressor, 3-band EQ, wah, distortion (some hybrid), hyper-resonator, amp sim., chorus, flange, phaser, vibrato, tremolo, ring mod., modulation delay, pitch shift, bend, stereo delay, reverbs, cross delay, tap tempo	7	Yes	Yes	1,000 ms	±1 octave	No	None
Korg/ Toneworks	PX2	0/38	None	Compression, overdrive, distortion (some hybrid), reverb, wah, pitch shift, EQ, chorus, flange, vibrato, phase, tremolo, pan delays, echo, cabinet resonator	6	No	Bypass	730 ms	±2 octaves	No	None
Lexicon	MPX 1	200/50	None	Reverbs, gate, ambience, delay, echo, loop, tremolo, chorus, flanger, rotary CAD, pitch shifting, EQ, phaser, orbits, centrifuge	5	Yes	Yes	2 seconds	5 1/2 octaves	Yes	30
Lexicon	PCM 81	450/50	None	Chorus, controls, delay, feedback/ cross-feedback, filters, glide FX, levels, modulation, panning, patching, pitch, resonance, RVB design, RVB time	Depends on specific algorithm	Yes	Yes	20 sec	±3 octaves	Yes	10 (>100 with MIDI SysEx)

Discrete Processing Channels	ADC/DAC	Fry Warning	Inputs	Outputs	Power Supply	Special Features	Price
2	24-bit	10-segment clip light	1/4" unbalanced analog, XLR balanced, AES/EBU & S/PDIF digital	XLR balanced, AES/EBU & S/PDIF digital	50 watts, 100-130 volts or 200-240 volts AC, 50/60 Hz	87 second mono internal sampler (43.5 seconds in stereo)	$5,895
2 (algorithm dependent)	16-bit	10-segment clip light	XLR balanced analog (pin 3 hot)	XLR balanced analog (pin 3 hot)	75 watts, 100-130 volts or 200-240 volts AC, 50/60 Hz		$2,695
2 (algorithm dependent)	16-bit	10-segment clip light	XLR balanced analog (pin 3 hot)	XLR balanced analog (pin 3 hot)	75 watts, 100-130 volts or 200-240 volts AC, 50/60 Hz		$1,995
2 (algorithm dependent)	16-bit	10-segment clip light	XLR balanced analog (pin 3 hot)	XLR balanced analog (pin 3 hot)	75 watts, 100-130 volts or 200-240 volts AC, 50/60 Hz	95 second mono sampler, 47.5 second in stereo	$3,595
2	None	None	Digital AES/EBU and SPDIF	Digital AES/EBU and SPDIF	AC	Real-time decrackle	$6,495
2	None	None	Digital AES/EBU and SPDIF	Digital AES/EBU and SPDIF	AC	Real-time declick	$5,995
2	None	None	Digital AES/EBU and SPDIF	Digital AES/EBU and SPDIF	AC	Real-time dehiss	$6,875
2	None	None	1/4"	1/4"	AC	Stereo panning	$1,425
4	16-bit linear 48kHz/18 bit linear	Clip light	8 (4 stereo pairs 1/4") + AES/EBU mode II digital in	8 (4 stereo pairs 1/4") + AES/EBU mode II digital out	AC (internal Transformer)	Clocks to MIDI, 4 independent serial/parallel processors w/individual input-output	$1,197
2	18-bit linear, 128x oversampling	Digital clip meter	(2) 1/4" in and MIDI In, Thru, Out	(2) 1/4"	9 VAC		$600
2	18-bit linear, 128x oversampling	Digital clip meter	(2) 1/4" in and MIDI In, Thru, Out	(2) 1/4"	9 VAC		$600
1	18-bit/18-bit	Peak	1/4" (1), 1/8" (1)	1/4" (2)	9V adapter	Pressure pedal, tuner, program naming, aux in, headphone, series and parallel effects chains	$275
1	18-bit/18-bit	Clip light	1/4" (1), 1/8" (1)	1/4" (2)	9V adapter	Pressure pedal, tuner, program naming, aux in	$275
1	18-bit/18-bit	None	1/4" (1), 1/8" (1)	1/4" (1)	2 AA batteries, optional 9V adapter	Metronome, tuner, 32 built-in drum patterns	$250
2	18-bit/20-bit	6-segment LED clip light	1/4" (2), XLR (2), S/PDIF	1/4" (2), XLR (2), S/PDIF	Universal	Multiple processor effects, S/PDIF I/O, tap tempo, A/B switching, parameter morphing, onboard-help system, flexible effect routing, library sort, search, and show database function, optional MPX R1 pedalboard $579	$1,299.99
2	18-bit/18-bit	5-segment LED clip light	1/4"/XLR combo jacks (2), S/PDIF, AES/EBU	1/4" (2), XLR (2), S/PDIF, AES/EBU	Universal	PCMCIA card slot, front-panel adjust knob, tap tempo, AES/EBU and S/PDIF I/O, simultaneous digital/analog input control, spatialization for 3-D effects, PCMCIA effects cards available with additional algorithms and presets	$2,995

EFFECTS PROCESSORS

Manufacturer	Model	Presets (Factory/User)	Analog Effects	Digital Effects	Simultaneous Effects	Programmable Wet/Dry Mix	Compare/ Bypass	Maximum Delay Time	Maximum Pitch Shift Range	MIDI Real-Time Control	Simultaneous MIDI Controllers
Lexicon	PCM 91	450/50	None	Hall/plate/chamber/room reverb, dual reverbs, delay, echo, expand, modulation, spatial EQ, ambience	2	Yes	Yes	2,500 ms	None	Yes	10 (>100 with MIDI SysEx)
Pefftronics	RTSP-1600	30/20	Flanger, chorus, doubling	Delay	2	Yes	Bypass	700 ms (expandable)	N/A	Yes	12
Rocktron	Intelliflex	80/80	None	Chorus, delay, reverb, dynamic ducker, 4-voice pitch shift, hush noise reduction	4	Yes	Yes	1,500 ms	1 octave up/ 2 octaves down	Yes	8
Rocktron	Replifex	128/128	None	Two tap delays, reverb, chorus, phaser, tremolo, flanger, pitch shift, auto-pan, mixing, 4-band parametric EQ, speaker simulation, hush noise reduction	10	Yes	Yes	1,000 ms	1 octave up/ 2 octaves down	Yes	10
Roland	Roland GP-100 Guitar Preamp/ Processor	200/200	Compressor, wah/auto wah, 4-band EQ (low, high, low-mid parametric, high-mid parametric), noise suppressor, phaser, flanger, foot volume, tremolo/pan, vibrato, Slow Gear, 2 effect loops, Feedbacker	14 COSM modeled preamps, 12 COSM modeled speaker simulators w/modeled mic and mic placement, 5-part mono and stereo harmonist (intelligent pitch-shifter), digital delay, 4-tap delay, tempo delay, ducking delay, mono and stereo chorus, reverb (5 modes)	15	Yes	Yes	4,800 ms	±2 octaves	Yes	16
Roland	SDE-330	100/200	None	3	3	No	Yes	2900 ms	±1 octave	Yes	3
Roland	SDX-330	100/200	None	5	3	No	Bypass	N/A	N/A	Yes	5
Roland	SRV-330	300/100	None	5	5	No	Yes	370 ms	N/A	Yes	5
Roland	SX-700	128/128	None	5	5	Yes	Bypass	1,400 ms	±2 octaves	Yes	3
Roland	VT-1	32/4	None	Voice transfer	2	Yes	Bypass	N/A	±1 octave	No	4
RSP Technologies	Intelliverb	254/254	None	8-voice chorus, 4-voice pitch shifting, reverb, delay, hush noise reduction	5	Yes	Yes	2.5 sec	1 octave up/ 2 octaves down	Yes	8
Sony	DPS-V55	200/200	None		4	Yes	Bypass	2,720 ms	±2.4 octaves	No	
Sony	DPS-V77	198/198	None	Reverb, flange, chorus, delay, pitch shift, guitar amp simulator	4	Yes	Yes	5,460 ms	±2.4 octaves	Yes	6
Sony	HR-GP5	100/100	None	Reverb, flange, chorus, delay, pitch shift, guitar amp simulator	7	Yes	Yes	682 ms (stereo)/1,364 ms (mono)	±2.4 octaves	Yes	4
Spatializer	Retro		3-D Audio	N/A	1	N/A	Bypass	N/A	N/A	N/A	None
Symetrix	606 Delay FX Machine	10/99	None	Delay, chorus, room simulator, flanger, auto pan, filter	2	Yes	Bypass	2.5 sec	N/A	Yes	None
TC Electronic	1210 Spatial Expander + Stereo Chorus Flanger		4 flanger, pitch modulation, expander	None	3	No	Yes	066 to 22 ms	N/A	No	None
TC Electronic	1280 Stereo Digital Audio Delay	4/4	None	2 separate delay channels	2	No	Yes	2.5 sec with chip expansion	N/A	Yes	1

Discrete Processing Channels	ADC/DAC	Fry Warning	Inputs	Outputs	Power Supply	Special Features	Price
2	18-bit/18-bit	5-segment LED clip light	1/4"/XLR combo jacks (2), S/PDIF, AES/EBU	1/4" (2), XLR (2), S/PDIF, AES/EBU	Universal	Digital reverberator, PCMCIA card slot, keyword search, dual-reverb split algorithms, including matrix surround reverbs, concert-hall algorithms, digital compression	$2,995
1	16-bit/16-bit (both upgradeable)	Clip light	1/4" (1)	1/4" (3)	Internal 11/220 VAC	Random modulation waveform, upgradable hardware and software, hybrid analog/digital design, no DSPs	$549
No	16-bit, 128x oversampling/16-bit, 128x oversampling	5-segment LED	1/4" (2)	1/4" (2)	External	Analog signal path separate from DSP	$699
No	16-bit, 128x oversampling/16-bit, 128x oversampling	5-segment LED	1/4" (2)	1/4" (2)	External	High frequencies are internally rolled-off for warmer-sounding FX, Analog signal path	$799
2	20-bit, 128x oversampling	16-segment LED, Clip light	1/4" (1)	1/4" (4)	AC	COSM	$995
2	16-bit	7-segment LED	1/4" (2)	1/4" (2)	AC	3-D RSS technology	$995
2	16-bit/16-bit	7-segment LED	1/4" (2)	1/4" (2)	AC	3-D RSS technology	$895
2	16-bit	LED	1/4" (2)	1/4" (2)	AC	3-D RSS technology	$995
1	18-bit	Clip light	1/4" (2)	1/4" (2)	Wall Wart		$395
1	16-bit/16-bit	Clip light	1/4" (1)	1/4" (1), RCA (2)	AC adapter	Real-time control over pitch and formant	$395
1	16-bit, 128x oversampling/ 16-bit, 128x oversampling	5-segment LED	1/4" (2)	1/4" (2)	External	Ducking, 104 dB dynamic range	$1,299
4	20 bit/20-bit	Clip light	Balanced 1/4" (x4) w/switchable	Balanced 1/4" (x4) w/switchable	Internal	High-quality 52-bit DSP engine, surround-sound algorithms, custom "Designer" presets	$550
2	24 bit/20-bit	Clip light	XLR (2), AES/EBU, S/PDIF	XLR (2), AES/EBU, S/PDIF	Internal	Morphing transitions between presets, dual FX blocks, 52-bit DSP path	$1,775
1	18-bit/18-bit	Clip light	1/4" (1)	1/4" (2)	Separate PSV	Amp simulation with different microphone placements	$595
2	N/A	LED	Balanced 1/4"	Balanced 1/4"	Internal	Spatializers famous 3-D audio technology in a rack unit w/ internal power supply, "set & forget" performance, mono compatible, upgrades any stereo mixer to a 3-D console	$699
2	20-bit/20-bit	4-segment LED, clip light	Balanced 1/4"	Balanced 1/4"	Internal	Six modulation sources, room simulations, tap tempo	$649
2	N/A	LED	1/4" XLR	1/4" XLR	AC	Utilizes Haas principle of first arrival to create expansion	$1,684
2	18-bit	Overload LED	XLR	XLR	AC	1 MHz sample rate	$2,446

EFFECTS PROCESSORS

Manufacturer	Model	Presets (Factory/User)	Analog Effects	Digital Effects	Simultaneous Effects	Programmable Wet/Dry Mix	Compare/ Bypass	Maximum Delay Time	Maximum Pitch Shift Range	MIDI Real-Time Control	Simultaneous MIDI Controllers
TC Electronic	1380 Multitap Digital Audio Delay	4/4	None		1	No	Yes	5 sec with chip expansion	N/A	Yes	1
TC Electronic	2290	100/100	None		2	Yes	Yes	8 sec	N/A	Yes	1
TC Electronic	FireworX	200/100	None	35	DSP space dependent	Yes	Yes	3 sec	±2 octaves	Yes	Yes
TC Electronic	G-Force	200/100	None	Reverb, delay, filters, diatonic pitch shift, phasing, flanging, compression, panning/tremolo, gate, drive, modulation, etc.	8	Yes	Bypass	1,480 ms	2 octaves	Yes	8
TC Electronic	M2000	256/256	None	Reverb, delay, chorus, flange, EQ compression, panning, tremolo, limiting, de-essing, expansion, gating, stereo enhance	2	Yes	Bypass	1,200 ms	2 octaves	Yes	16
TC Electronic	M5000 Digital Audio MainFrame	212/100	None	Up to 4	Up to 4	Yes	Yes	1340 ms or 670 ms per side	±1 octave	Yes	None
TC Electronic	Stereo Chorus Flanger Pedal	None	3	None	1	No	Yes	N/A	N/A	No	None
Viscount	EFX-3000	0/512	None	Compression, distortion, EQ, mod, special effects 1, special effects 2, delay, reverb, amp simulation	9	Yes	Yes	2,000 ms	±2 octaves	Yes	2
Yamaha	D5000	100	None	Single delay, dual delay, freeze rec & playback, sample & hold	2	N/A	Yes	5 sec (stereo), 10 sec (mono)	N/A	Yes	2
Yamaha	ProR3	90	None	Reverb, early reflections, room simulator, echo+rev, early reflections+rev, chorus+rev, symphonic+rev, flange+rev, pitch change+rev, symphonic+rev,	3	Yes	Yes	N/A	±1 octave	Yes	2
Yamaha	REV100	99	None	Stereo reverb, reverb, gate reverb, delay, delay+reverb, reverb-flanger, chorus+reverb, symphonic+reverb	0	Yes	Yes	N/A	N/A	Yes	2
Yamaha	REV500	100	None	Reverb, pan + reverb, room simulator, echo + reverb	0	Yes	Yes	200 ms	N/A	Yes	4
Yamaha	SPX1000	40/59	None	Reverb, gate + reverb, chorus, stereo echo, freeze, distortion, triggered pan, delay, symphonic, tremelo	0	Yes	Yes	5,200 ms	±1 octave	Yes	4
Yamaha	SPX990	80	None	Reverb, delay, echo, early reflections, modulation, pitch change, pan, freeze, chorus + reverb, symphonic + reverb	3	Yes	Yes	1,480 ms	±2 octaves	Yes	4
Zoom	Studio 1201	363/0	None	33	2	No	Bypass	1,400 ms	±1 octave	No	None
Zoom	Studio 1204	512/100	None	32	2	No	Bypass	740 ms	±1 octave	Yes	6

Discrete Processing Channels	ADC/DAC	Fry Warning	Inputs	Outputs	Power Supply	Special Features	Price
One	18-bit	Overload LED	XLR	XLR	AC	1 MHz sample rate	$2,446
One	Single-bit dynamic differential conversion	LED	XLR, 1/4"	XLR, 1/4"	AC	1 MHz sample rate	$1,995
2	24-bit	Overload LED	XLR	XLR	AC	Vocoder, synth parameters, an LFO can effect another LFO	$2,195
2	24-bit/24-bit	Clip light	1/4" (2), S/PDIF	1/4" (2), S/PDIF	Internal	"Intelligent" pitch shifting by Wave Mechanics; 5x14-LED "Marquee" for tuning; preset number, messages, etc.	$1,795
2	20-bit/20-bit	LED	XLR (2), (XLR), AES/EBU, S/PDIF	XLR (2), (XLR), AES/EBU S/PDIF	Internal	Dynamic morphing; preset glide	$1,995
1/up to 4	18-bit A to D, 20-bit D to A	LED	XLR, AES/EBU	XLR, AES/EBU	AC	This unit is expandable and can be updated via internet download	Starts at $4,000
1	N/A	Overload LED	1/4"	1/4"	AC	Transparent sound quality	$399
3	24-bit/24-bit	6-segment LED	1/4" (3), XLR (2)	1/4" (2), XLR (2)	Internal	Complete spectrum analyzer; built-in guitar/bass tuner; integrated foot-pedal board (FC-3000); 240x64-pixel backlit LCD	$1,495
2	20-bit/20-bit	Clip light	XLR (2)	XLR (2)	Internal		$1,499
2	20-bit/20-bit	Clip light	XLR (2)	XLR (2)	Internal		$1,299
2	16-bit/16-bit	Clip light	1/4" (2)	1/4" (2)	Internal		$299
2	20-bit, 64x oversampling/ 20-bit, 8x oversampling	Clip light	1/4" (2), XLR (2)	1/4" (2), XLR (2)	Internal		$499
2	16-bit/16-bit	Clip light	1/4" (2)	1/4" (2)	Internal		$1,829
2	20-bit, 64x oversampling/ 20 bit, 8x oversampling	Clip light	XLR (2)	XLR (2)	Internal		$1,179
2	18-bit 64x oversampling, 2 channels/ 18-bit 8x oversampling, 2 channels	Clip light	1/4" (2)	1/4" (2)	External 9V	Vocoder, auto filter, Karaoke and vocal-distortion effects	$169.99
2	18-bit, 128x oversampling/ 18-bit, 128x oversampling	Clip light	1/4" (2)	1/4" (2)	External 9V	Mic input for vocoder effects, vocal distortion, rotary effect	$249.99

HEADPHONES

Manufacturer	Model	Type	Frequency Response	Sensitivity (dB per mW)	Impedance (Ohms)
AKG	K 1000	Dynamic transducer w/VLD magnet	30 Hz–25 kHz	74	120
AKG	K 141 M	Dynamic	20 Hz–20 kHz	98	600
AKG	K 240 DF	Dynamic	20 Hz–20 kHz	88	600
AKG	K 240 M	Dynamic	15 Hz–20 kHz	88	600
AKG	K 270 S	Dynamic	20 Hz–28 kHz	92	75
AKG	K 300 M	Dynamic	18 Hz–30 kHz	94	100
AKG	K 400	Dynamic	15 Hz–32 kHz	94	120
AKG	K 70	Dynamic	20 Hz–20 kHz	105	100
AKG	ROX	Dynamic	20 Hz–20 kHz	105	100
AKG	K 100	Dynamic	20 Hz–28 kHz	103	100
Audio-Technica	ATH-910	Dynamic	20 Hz–22 kHz	92	40
Audio-Technica	ATH-M40fs	Dynamic	5 Hz–28 kHz	100	60
beyerdynamic	DT-150	Dynamic	10 Hz–30 kHz	N/A	250
beyerdynamic	DT-131	Dynamic	30 Hz–18 kHz	N/A	40
beyerdynamic	DT-250	Dynamic	10 Hz–30 kHz	98	80
beyerdynamic	DT-770 Pro	Dynamic	5 Hz–35 kHz	N/A	600
beyerdynamic	DT-990 Pro	Dynamic	5 Hz–35 kHz	N/A	600
Fostex	T-20RP	Printed ribbon	50 Hz–30 kHz	96	50
Fostex	T-40RP	Printed ribbon	30 Hz–20 kHz	98	50
Fostex	T-5	Dynamic	65 Hz–20 kHz	96	50
Fostex	T-7	Dynamic	50 Hz–20 kHz	98	50
Koss	A/130	Dynamic	16 Hz–23 kHz	98	60
Koss	A/200	Dynamic	18 Hz–25 kHz	98	60
Koss	R/10	Dynamic	30 Hz–22 kHz	103	60
Koss	R/100	Dynamic	16 Hz–22 kHz	85	60
Koss	R/20	Dynamic	20 Hz–22 kHz	101	60
Koss	R/200	Dynamic	18 Hz–23 kHz	84	60
Koss	R/30	Dynamic	18 Hz–20 kHz	106	60
Koss	R/35	Dynamic	20 Hz–22 kHz	101	60
Koss	R/40	Dynamic	18 Hz–20 kHz	90	60
Koss	R/45	Dynamic	20 Hz–22 kHz	85	60
Koss	R/80	Dynamic	16 Hz–22 kHz	101	60
Koss	R/90	Dynamic	18 Hz–23 kHz	100	60
Koss	TD/61	Dynamic	25 Hz–15 kHz	93.5	38
Koss	TD/65	Dynamic	20 Hz–17 kHz	101	90
Koss	TD/80	Dynamic	20 Hz–17 kHz	98	60
Koss	A/250	Dynamic	16 Hz–25 kHz	98	60
Radial Engineering	MB Quart QP240	Dynamic	24 Hz–20.1 kHz	98	100
Radial Engineering	MB Quart QP250	Dynamic	13 Hz–20.4 kHz	98	100
Radial Engineering	MB Quart QP400	Dynamic	14 Hz–24.1 kHz	93	300
Radial Engineering	MB Quart QPH805	Dynamic	10 Hz–33.4 kHz	96	300
Radial Engineering	MB Quart QP160	Dynamic	30 Hz–26.4 kHz	90	40
Radial Engineering	MB Quart QR 280	Dynamic	16 Hz–23.5 kHz	96	300
Radial Engineering	MB Quart QP 240	Dynamic	24 Hz–20.1 kHz	98	100
Radial Engineering	MB Quart QP 220	Dynamic	20 Hz–20.1 kHz	90	100
Radial Engineering	MB Quart QP 200	Dynamic	24 Hz–20 kHz	97	100
Roland	RH-120	Dynamic	20 Hz–20 kHz	100	40
Roland	RH-80	Dynamic	20 Hz–20 kHz	94	40
Sennheiser	HD 25	Dynamic	30 Hz–16 kHz	124	70
Sennheiser	HD 25 SP	Dynamic	16 Hz–22 kHz	105	85
Sennheiser	HD 265	Dynamic	10 Hz–30 kHz	97	150
Sennheiser	HD 433	Dynamic	22 Hz–20 kHz	94	32
Sennheiser	RS 6	Dynamic	20 Hz–20 kHz	N/A	N/A
Sennheiser	RS 8	Dynamic	20 Hz–22 kHz	N/A	N/A
Sony	MDR-7506	Dynamic	10 Hz–20 kHz	106	63
Yamaha	RH1	Dynamic	20 Hz–20 kHz	90	32
Yamaha	RH3	Dynamic	20 Hz–20 kHz	95	60
Yorkville Sound	Apex HP 30	Dynamic	20 Hz–20 kHz	100	40
Yorkville Sound	Apex HP 60	Dynamic	20 Hz–20 kHz	100	40

Power-Handling Capacity	Ear-Cup Design	Ear-Cup Covering	Cord Length	Price
200 mW	Off-head	Leatherette	6', with 10' extension cable	$1,456
200 mW	Semiopen, supraural	Leatherette	10'	$138
200 mW	Semiopen, circumaural	Leatherette	10'	$192
200 mW	Semiopen, circumaural	Leatherette	10'	$172.80
200 mW	Sealed, circumaural	Leatherette	10'	$320
200 mW	Open, circumaural	Leatherette	10'	$119
200 mW	Open, circumaural	Cloth	10'	$129
200 mW	Semiopen, circumaural	Foam	6'	$61.40
200 mW	Semiopen, supraural	Foam	6'	$73.80
200 mW	Semiopen, supraural	Leatherette	10'	$123.60
120 mW	Circumaural	Leatherette	9.8'	$115
1,600 mW	Circumaural	Leatherette	11'	$150
100 mW	Closed	Felt	10'	$179
N/A	Open, supraural	Felt	10'	$49
10 mW	Closed, circumaural	Felt	10'	$199
100 mW	Closed	Felt	10'	$159
100 mW	Open, diffuse	Felt	10'	$159
200 mW	Semiopen	Leather	8'	$119
200 mW	Closed	Leather	8'	$129
100 mW	Semiopen	Foam	6'	$70
100 mW	Semiopen	Foam	6'	$85
100 mW	Closed	Leatherette	8'	$149.99
100 mW	Open	Cloth	8'	$199.99
100 mW	Closed	Leatherette	8'	$39.99
100 mW	Closed	Leatherette	Two 8' cords (one includes phase II for 3-D sound)	$89.99
100 mW	Open	Foam	8'	$44.99
100 mW	Open	Cloth	Two 8' cords (one includes phase II for 3-D sound)	$89.99
100 mW	Closed	Leatherette	8', w/dual volume control	$49.99
100 mW	Open	Foam	8'	$49.99
100 mW	Closed	Leatherette	4.5' (includes phase II for 3-D sound)	$54.99
100 mW	Open	Foam	4.5' (includes phase II for 3-D sound)	$59.99
100 mW	Closed	Leatherette	8'	$69.99
100 mW	Open	Cloth	8'	$69.99
100 mW	Closed	Leatherette	8'	$24.99
100 mW	Closed	Leatherette	8'	$29.99
100 mW	Closed	Leatherette	10'	$49.99
100 mW	Open	Leatherette	8'	$249.99
100 mW	Open	Velour	10'	$189.99
100 mW	Closed	Leatherette	10'	$199.99
100 mW	Circumaural	Velvet	10'	$299.99
100 mW	Closed	Leatherette	10'	$89.99
100 mW	Semiopen	Leatherette	10'	$89.99
100 mW	Open	Velvet	10'	t.b.a.
100 mW	Open	Velour	10'	$189.99
100 mW	Open	Velour	10'	t.b.a.
100 mW	Semiopen	Leathette	10'	t.b.a.
1,300 mW	Closed	Vinyl	8'	$149
100 mW	Open	Vinyl	11.5'	$99
100 mW	Closed, supraural	Padded vinyl	4.9'	$259
200 mW	Closed, supraural	Padded vinyl	10'	$149.95
200 mW	Circumaural	Padded vinyl	10'	$249.95
100 mW	Open, supraural	Foam	10'	$39.95
N/A	Supraural	Foam	Wireless	$269.95
N/A	Supraural	Foam	Wireless	$369.95
1W	Closed	Vinyl-covered foam	9.75'	$170
N/A	Open	Foam	6'	$19.95
N/A	Closed	Vinyl-padded	8'	$49.95
200 mW	Open back	Leatherette	10'	$22.95
200 mW	Semiopen back	Leatherette	10'	$29.95

KEYBOARD WORKSTATIONS

Manufacturer	Model	Polyphony (# of voices)	Multitimbral Parts	Waveform Memory ROM/RAM	Filter Resonance	Single Programs/ Multitimbral Performances	Portamento	# of Keys	# of Keyboard Zones (max)	Left-Hand Controllers	Aftertouch (Poly/Channel)	# and Type of Controller Inputs
E-mu Systems	E-Synth Keyboard	64, max 128	16, max 32	16 MB ROM, max 32; 4 MB RAM max 64	Yes	1,256/50	Yes	76	256	MOD wheel, pitch wheel, thumby button, 4 real-time sliders	Channel	2 footswitch, 1 footpedal
E-mu Systems	E4K Turbo	128	16, max 32	16 MB ROM, exp to 128, exp ROM to 32 MB	Yes	1,000/50	Yes	76	256	MOD wheel, pitch wheel, thumby button, 4 real-time sliders	Channel	2 footswitch, 1 footpedal
Ensoniq	ZR-76 Composition/ Performance Keyboard	64	16	14 MB base, 30 MB with included EXP-4	N/A	1,475 single programs base, 1,590 with included EXP-4/52 multitimbral performances	No	76, weighted action	3 keyboard zones, 64 zones for mapping drum sounds	Modulation, pitch bend wheels	Channel pressure xmit/rev, Poly rev via MIDI	1 mod/volume 2 single/dual foot switch, MIDI In/Out/Thru
Kawai	K500W	64	32	16 MB	Yes	Up to 384	Yes	61	6 in single patch, 4 in multi	Pitch & mod wheels	Channel	Hold, compression
Korg	I30	32	16	18 MB ROM	No	488/0	No	61	16	Joystick (X/Y), switches (2), Play/Mute and Mixer controls for arrangements	Channel	Assignable pedal, assignable switch, damper (2)
Korg	IS40	32	16	14 MB ROM	No	400/0	No	61	16	Joystick (X/Y)	Channel	Assignable pedal, assignable switch (2)
Korg	IS50	32	16	12 MB ROM	No	400/0	No	61	16	Joystick (X/Y)	Channel	Assignable pedal, assignable switch
Korg	IX300	32	16	14 MB ROM	No	412	No	61	16	Joystick (X/Y)	Channel	Assignable pedal, assignable switch
Korg	N264	64	16	8 MB ROM	No	536/400	No	76	16	Joy stick (X/Y)	Channel	Assignable pedal, assignable switch, damper (2)
Korg	N364	64	16	8 MB ROM	No	536/400	No	61	16	Joy stick (X/Y)	Channel	Assignable pedal, assignable switch, damper (2)
Korg	Trinity	32	16	24 MB ROM	Yes	256/256	No	61	16	Joy stick (X/Y), switches 1 and 2, ribbon controller	Channel	Assignable pedal, assignable switch, damper (3)
Korg	Trinity Plus	32	16	24 MB ROM	Yes	310/256	Yes, in added solo synth bank	61	16	Joy stick (X/Y), switches 1 and 2, ribbon controller	Channel	Assignable pedal, assignable switch, damper (3)

# of Sequencer Tracks	Sequencer Memory	Recording Resolution	Types of Quantization	Arpeggiator	# of Effects Processors/ Effects Programs	# and Type of Audio Outputs	Special Features	Options	Price
48	3 MB	480 ppqn	Input , swing, normal	Yes	>30 delays, >30 chorus, flange, phase distortion	8	Sampling & resampling; SCSI; ASCII outerface, sound driver editor	RAM 64 MB, 16 MB ROM, MIDI input X2	$3,995
48	3 MB	480 ppqn	Input , swing, normal	Yes	>30 delays, >30 chorus, flange, phase distortion	8	2 GB hard drive; sampling & resampling; SCSI; ASCII outerface; sound driver editor	RAM 128 MB, 32 MB ROM, MIDI input X2	$5,195
16	231 KB memory (approx. 70,000 events)	384 ppqn, synchronized to internal or MIDI clock source	Quantize from whole note to 1/64 triplet, normal or Delta quantization, strength, swing, random, shift, key range, window, quantize note offs, move note offs, user-definable templates	No	Global chorus and reverb, plus 40 insert effect choices	Left/mono and right main and audio outputs (balanced TRS), stereo headphone output	Idea pad; drum machine with 119 onboard rhythms; Perfect Piano (EXP-4); Soundfinder; 24-bit FX	EXP Series Wave Expansion boards, FLASH Sample Memory Board	$2,795
40	40,000 notes	96 ppqn	By measure and note region with tolerance around the quantize value; 10 variable-strength groove templates	No	6 total: 4 Multi-FX (37 types) + Reverb (11 types) + 1 Graphic EQ (7 band)	Stereo L/R main outputs, stereo L/R individual output	Advanced Additive Synthesis; Interactive Composing Tool (Audio Phase Generator); Chord Advise; 2 sets of MIDI in/out/thru	ME-1 Memory Enhancement ($159) adds 2 Additive Banks ASL-1/2/3/4 sound libraries ($49.94 each); MCB-10 Macro Controller Box ($179); Real-time Macro Control knobs for editing additive/synth parameters	$2,395
16	65,536 notes	192 ppqn	Hi, 32nd, 32nd swing, 16th, 16th swing, 8th, 8th swing, 4th, 4th swing	No	4 /47 algorithms	(4)1/4" mono outs	Touch screen; PC interface; music stand	Internal 1 GB hard drive	$2,495
16	40,000 notes	192 ppqn	Hi, 32nd, 32nd swing, 16th, 16th swing, 8th, 8th swing, 4th, 4th swing	No	2/47 algorithms	(2)1/4" mono outs	PC interface; music stand		$1,695
16	40,000 notes	192 ppqn	Hi, 32nd, 32nd swing, 16th, 16th swing, 8th, 8th swing, 4th, 4th swing	No	2 /47 algorithms	(2)1/4" mono outs	Music stand		$1,450
16	40,000 notes	192 ppqn	Hi, 32nd, 32nd swing, 16th, 16th swing, 8th, 8th swing, 4th, 4th swing	No	2 /47 algorithms	(2)1/4" mono outs	PC interface; music stand		$1,900
16	32,000 notes	192 ppqn	Hi, 32nd, 32nd swing, 16th, 16th swing, 8th, 8th swing,	Yes	2 /47 algorithms	(4)1/4" mono outs	RPPR — lets you assign patterns to keys for live triggering		$2,400
16	32,000 notes	192 ppqn	Hi, 32nd, 32nd swing, 16th, 16th swing, 8th, 8th swing, 4th, 4th swing	Yes	2 /47 algorithms	(4)1/4" mono outs	RPPR — lets you assign patterns to keys for live triggering		$1,900
16	80,000 notes	192 ppqn	Hi, 32nd, 32nd swing, 16th, 16th swing, 8th, 8th swing, 4th, 4th swing	No	2 master/8 insert — 114 algorithms	(4)1/4" mono outs	Touch screen interface	HDR-TRI digital audio recording interface (drive not included); PBS-TRI 8 MB flash ROM for sample importation; DI-TRI-ADAT optical output and Word Clock in; SCSI-TRI SCSI interface (included on HDR-TRI option)	$3,000
16	80,000 notes	192 ppqn	Hi, 32nd, 32nd swing, 16th, 16th swing, 8th, 8th swing, 4th, 4th swing	No	2 master/8 insert — 114 algorithms	(4)1/4" mono outs	Touch screen interface, MOSS Synthesis solo synth bank	HDR-TRI digital audio recording interface (drive not included); PBS-TRI 8 MB flash ROM for sample importation; DI-TRI-ADAT optical output and Word Clock in; SCSI-TRI SCSI interface (included on HDR-TRI option)	$3,350

KEYBOARD WORKSTATIONS

Manufacturer	Model	Polyphony (# of voices)	Multitimbral Parts	Waveform Memory ROM/RAM	Filter Resonance	Single Programs/ Multitimbral Performances	Portamento	# of Keys	# of Keyboard Zones (max)	Left-Hand Controllers	Aftertouch (Poly/Channel)	# and Type of Controller Inputs
Korg	Trinity Pro	32	16	24 MB ROM	Yes	310/256	Yes, in added solo synth bank	76	16	Joy stick (X/Y), switches 1 and 2, ribbon controller	Channel	Assignable pedal, assignable switch, damper (3)
Korg	Trinity ProX	32	16	24 MB ROM	Yes	310/256	Yes, in added solo synth bank	88 weighted	16	Joy stick (X/Y), switches 1 and 2, ribbon controller	Channel	Assignable pedal, assignable switch, damper (3)
Kurzweil	K2000VP/R	24 for sample play, 96 total oscillators	16	8 MB ROM, expandable to 24 MB. Up to 64 MB RAM.	Yes	200 preset programs/ 100 preset setups	Yes	61	3	Pitch mod, mod wheel, data-slider	Transmits channel, receives both poly+channel	(2) footswitch, (1) cont. pedal
Kurzweil	K2500/x/r/s	48 for sample play, 192 total oscillators	16	8 MB ROM, expandable to 28 MB. Up to 128 MB RAM.	Yes	200 preset programs/ 100 preset setups	Yes	K2500: 76, K2500X: 88, K2500R: rack module	8	(8) sliders,pitch mod, mod wheel, small ribbon, large ribbon, (2) push button	Transmits/ received channel	(4) footswitch, (2) cont., breath control
Kurzweil	K2VX	24 for sample play, 96 total oscillators	16	8 MB ROM, expandable to 24 MB. Up to 64 MB RAM.	Yes	600 preset programs/ 300 preset setups	Yes	61	3	Pitch mod, mod wheel, data-slider	Transmits channel, receives both poly+channel	(4) footswitch, (2) cont., breath control
Roland	XP60	64	16	Equivalent to 16 MB internal, expandable to 80 MB	Yes	512 preset patches/64 performances, 128 user patches/32 user perform	Yes	61	16	Pitch bend, modulation lever, 2 assignable sliders	Mono/channel, receives poly	5 (pedal hold & 4 assignable)
Roland	XP80	64	16	Equivalent to 16 MB internal, expandable to 90 MB	Yes	512 preset patches/64 performances, 128 user patches/ 32 user perform	Yes	76	16	Pitch bend, modulation lever, 2 assignable sliders	Mono/channel, receives poly	5 (pedal hold & 4 assignable)

# of Sequencer Tracks	Sequencer Memory	Recording Resolution	Types of Quantization	Arpeggiator	# of Effects Processors/ Effects Programs	# and Type of Audio Outputs	Special Features	Options	Price
16	80,000 notes	192 ppqn	Hi, 32nd, 32nd swing, 16th, 16th swing, 8th, 8th swing, 4th, 4th swing	No	2 master/8 insert—114 algorithms	(4) 1/4" mono outs	Touch screen interface, MOSS Synthesis solo synth bank	HDR-TRI digital audio recording interface (drive not included); PBS-TRI 8 MB flash ROM for sample importation; DI-TRI-ADAT optical output and Word Clock in; SCSI-TRI SCSI interface (included on HDR-TRI option)	$4,150
16	80,000 notes	192 ppqn	Hi, 32nd, 32nd swing, 16th, 16th swing, 8th, 8th swing, 4th, 4th swing	No	2 master/8 insert—114 algorithms	(4) 1/4" mono outs	Touch screen interface, MOSS Synthesis solo synth bank	HDR-TRI digital audio recording interface (drive not included), PBS-TRI 8 MB flash ROM for sample importation; DI-TRI-ADAT optical output and Word Clock in; SCSI-TRI SCSI interface (included on HDR-TRI option)	$5,000
32	30,000 notes to 190,000	768 ppqn	Groove, reference quant, swing, shift	No	1 / 37 FX programs in RDM, upgradeable.	(4) 1/4" analog audio out, (1) XLR digital out	Reads sample libraries from AKAI, Roland & Ensoniq; 1 SCSI port standard; trigger song steps from keys in real time; includes 30 disk classic analog library	64 MB RAM, 24 MB ROM, harddrive, sampling	$1,995 keyboard $1,795 Rack
32	60,000 notes stock, upgradeable to 312,000	768 ppqn	Groove, reference quant, swing, shift	Yes	1/37 FX programs in RDM, upgradeable	(8) 1/4" analog audio out, (1) XLR digital out (1) optical digital out	Reads sample libraries from AKAI, Roland & Ensoniq; 2 SCSI ports standard; trigger song steps from keys in real time; real-time RE-sampling; Flash ROM upgradeable; KB-B drawbar emulation mode; LiveMode—process real-time input thru synth engine		$5,260 K2500/ $5,820 K2500X/ $4,175 K2500R
32	190,000 notes	768 ppqn	Groove, reference quant, swing, shift	No	1/37 FX programs in RDM, upgradeable	(4) 1/4" analog audio out, (1) XLR digital out, (1) optical digital out	Reads sample libraries from AKAI, Roland & Ensoniq, 1 SCSI port standard; trigger song steps from keys in real-time; includes 24 MB ROM	54 MB RAM, hard drive, sampling	$3,495
16 track/ 32 MIDI channel	60,000 notes	96 ppqn	Grid, groove, shuffle	Yes	3 effects processors	4 unbalanced	RPS, groove quantize, disk quick play, Sound Palette	4 expans on board slots	$1,995
16 track/ 32 MIDI channel	60,000 notes	96 ppqn	Grid, groove, shuffle	Yes	3 effects processors	4 unbalanced	RPS, groove quantize, disk quick play, Sound Palette	4 expansion board slots	$2,495

MIDI INTERFACES, PATCH BAYS, AND PROCESSORS

Manufacturer	Model	Computer Interface	# of MIDI Ins/Outs	Merging	Filtering	Rechannelizing	Controller Remapping	Keyboard Split/Zones (#)	# of Patches	Synchronization (type)	Special Features	Price
Anatek	MIDI Match System	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Allows you to transmit MIDI via XLR cable for up to 2,000 feet	$159
Anatek	Pocket Channel	N/A	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Remaps incoming data to other channels and filters out selected channels; allows velocity switching between channels	$99
Anatek	Pocket Mac	Mac	1/2	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Mac interface; comes with cable	$59
Anatek	Pocket Merge	N/A	2/1	Yes	No	No	N/A	N/A	N/A	N/A	Stackable for three or more inputs	$89
Anatek	Pocket Sync	N/A	1/1	No	No	No	No	N/A	N/A	FSK	JamSYNC protects against tape drop-outs; starts anywhere in song; automatic read/write switching; MIDI & FSK status LEDs	$99
Anatek	Pocket Thru	N/A	1/3	No	No	N/A	N/A	N/A	N/A	N/A	Up to four can be combined for nine outputs	$49
Anatek	Pocket Transpose	N/A	1/1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	5-octave range; separate interval for each channel; harmonization mode; footswitch controllable	$99
Anatek	Wind Machine	N/A	1/1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Allows you to use a Yamaha Breath Controller with any keyboard	$119
Digital Music	MX-28M MIDI patch bay/merger	N/A	2/8	Yes	No	Yes	No	Yes	N/A	N/A	Mapping, transposition; LED data indicators; panic button; 5-year warranty	$399
Digital Music	MX-28S MIDI patch bay	N/A	2/8	No	No	No	No	N/A	N/A	N/A	Output disable; LED data indicators; 5-year warranty	$89
Digital Music	MX-8 MIDI patch bay/processor	N/A	6/8	Yes	Yes	Yes	No	Yes	50	N/A	Velocity scaling/compander; Velocity cross-switch/MIDI delays; patch chaining; panic button; alphanumeric display; name presets; 5-year warranty	$399
Digital Music	The Funnel	N/A	6/1	No	No	No	No	N/A	N/A	N/A	Auto MIDI input selector for routing SysEx data; 5-year warranty	$79
Emagic	Unitor 8	Mac, Win 95	8/8 (expandable to 64/64 by chaining 8 units	Yes	Yes	No	No	0	32	SMPTE, VITC (generates and reads)	AMT (Active MIDI Transmission); Video Time Code burn-in; updatable firmware; freely definable Click Input; OMS, FreeMIDI and MME compatible; can be connected to Mac and PC simultaneously	$799
Mark of the Unicorn	Fast Lane	Mac	1/3 (16 channels)	No	No	No	No	N/A	N/A	N/A	No power supply needed (powers off computer); bypass button allows users to play MIDI gear from controller even when computer is off	$59
Mark of the Unicorn	Micro Express	Mac and PC	4/6 (96 channels)	Yes	Yes	Yes	No	N/A	16 (8 presets/ 8 user)	SMPTE, MTC	1/2-rackspace unit; internal power supply; operates without a computer; supports MMC; freewheels over SMPTE drop-outs (0–32 frames); converts click to MIDI; 2 footpedal inputs	$295
Mark of the Unicorn	MIDI Express XT	Mac and PC	8/9 (128 channels)	Yes	Yes	Yes	No	N/A	16 (8 presets/ 8 user)	SMPTE, MTC	Operates without a computer; supports MMC (can be controlled from a sequencer); freewheels over SMPTE drop-outs (0–32 frames); converts click to MIDI; 2 footpedal inputs	$395
Mark of the Unicorn	MIDI Timepiece AV	Mac and PC	8x8 (16x16 networked); 128 channels (256 networked)	Yes	Yes	Yes	No	N/A	8 base setups, 128 patches	SMPTE, MTC, video & word clock, Digidesign Superclock	Operates w/o computer via front-panel programming w/knobs & LCD; supports all SMPTE frame rates, including 29.97 drop & nondrop; 4x MIDI data rate on Mac; does MIDI Thru when computer is turned off; 2 footpedal inputs; see Synchronizer chart for additional information	$595
Mark of the Unicorn	PC-MIDI Flyer	PC	2/2 (32 channels)	No	No	No	No	N/A	N/A	N/A	No power supply needed (powers off computer); bypass button allows users to play MIDI gear from controller even when computer is off	$89
Mark of the Unicorn	Pocket Express	Mac and PC	2/4 (32 channels)	No	No	No	No	N/A	N/A	SMPTE, MTC	Bypass button allows users to play MIDI gear from a controller even when computer is turned off; SMPTE free- wheeling over drop-outs; front-panel SMPTE controls; reshapes time code	$165

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MIDI INTERFACES, PATCH BAYS, AND PROCESSORS

Manufacturer	Model	Computer Interface	# of MIDI Ins/Outs	Merging	Filtering	Rechannelizing	Controller Remapping	Keyboard Split/Zones (#)	# of Patches	Synchronization (type)	Special Features	Price
MIDI Solutions	Footswitch Controller, F8	N/A	1/1	Yes	No	Yes	No	No	N/A	None	MIDI-powered	$99, $329
MIDI Solutions	Mapper	N/A	1/1	No	No	No	Yes	No	N/A	None	MIDI-powered; programmed via SysEx	$99
MIDI Solutions	Merger, Quadra Merge, M8	N/A	2/1, 4/1, 8/1	Yes	No	No	No	No	N/A	None	MIDI-powered	$79, $129, $279
MIDI Solutions	Relay R8	N/A	1/1	No	No	No	No	No	128	None	MIDI-powered	$99, $429
MIDI Solutions	Router	N/A	1/2	No	Yes	Yes	No	Yes/10	N/A	None	MIDI-powered; programmed via SysEx	$99
MIDI Solutions	Thru, Quadra Thru, T8	N/A	1/2, 1/4, 1/8	No	No	No	No	No	N/A	None	All messages appearing at In are sent to all Outs; MIDI-powered	$49, $59, $199
MIDI Solutions	Velocity Converter	N/A	1/1	No	No	No	No	No	40	None	Applies Velocity curves to MIDI data; individual curves for each channel; MIDI-powered; programmed via SysEx	$99
Midiman	Digipatch 12x6	Mac and PC	N/A	No	N/A	N/A	N/A	N/A	N/A	N/A	Coaxial/optical S/PDIF ADAT lite pipe; patch bay	$699.95
Midiman	DMAN Studio	PC	1/1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Includes Samplitude full-duplex multimedia software	$249.95
Midiman	Mac Syncman	Mac	2/6	N/A	N/A	N/A	N/A	N/A	N/A	SMPTE, MTC	N/A	$199.95
Midiman	Macman	Mac	1/3	No	No	No	No	No	No	No	Passive Thru; no power needed but available 9-volt power supply/serial Thru (ground port); serial cable included	$59.95
Midiman	Merge 2x2	N/A	2/2	Yes	N/A	N/A	N/A	N/A	N/A	N/A	N/A	$99.95
Midiman	Mini Macman	Mac	1/1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	No power needed; serial cable included	$39.95
Midiman	Portman 2x4	PC Parallel	2/4	No	No	No	No	No	No	None	32-channels in/64-channels out; includes cable	$179.95
Midiman	Portman 4x4S	PC parallel	4/4	No	No	No	No	No	No	SMPTE, MTC	External 4x4 w/SMPTE; cable incl.; 4x4 patch bay/merger; native Win 95 drivers; stackable	$279.95
Midiman	Portman PC/P	PC	1/1 (parallel port)	No	No	No	No	No	No	None	Includes cable (parallel)	$79.95
Midiman	Portman PC/S	PC	1/1 (serial port interface)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Includes serial cable	$79.95
Midiman	Thru 1x4	N/A	1/4	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	$59.95
Midiman	Winman 1x1	PC	1/1	No	No	No	No	N/A	N/A	None		$69.95
Midiman	Winman 2x2	PC	2/2	No	No	No	N/A	N/A	N/A	None		$89.95
Midiman	Winman 4x4/S	PC	4/4	Yes	No	No	No	N/A	N/A	SMPTE, MTC	64-channel, ISA; native Win 95 drivers; 4x4 patch bay; stackable	$249.95
Opcode	MIDI Engine 2 Port/SE	PC	2/2	No	Yes	Yes	Yes	N/A	N/A		Reads/writes SMPTE; converts to MTC; routes MTC, MMC	$199.95
Opcode	MIDI Translator PC	PC	2/2	No	Yes	No	Yes	N/A	N/A	Passes MTC, MMC	Up to 4 units dock for expansion up to 128 channels	$129.95
Opcode	MQX-32M	PC (MIDI ISA/EISA card)	2/2	Yes	Yes (in some modes)	No	Yes (in some modes)	N/A	N/A	Reads/writes SMPTE (converts to MTC)		$249.95
Opcode	PC MIDI Card II	PC (ISA/ EISA card)	1/1	No	Yes	Yes	Yes	N/A	N/A	Passes MTC, MBC, MMC		$99.95
Opcode	Studio 128X	Mac and PC	8/9	Yes	Yes	Yes	Yes	Yes/up to 128 (Mac only)	8 user/ 4 preset	SMPTE, MTC, routes MMC	Full MIDI patch bay - route/merge any In(s) to any Out(s); Thru port for easy modem/ printer hookup; footswitch/trigger input; automatically detects Mac or PC operation	$429
Opcode	Studio 5 LX	Mac	15/15	Yes	Yes	Yes	Yes	Yes (up to 128 splits/ zones)	128	Reads/writes/ converts SMPTE to MTC; routes and passes MTC, MMC	Networks with other Studio 5s; Velocity scaling and many advanced MIDI processing features via Studio Patch Editor; Thru ports for modem/printer hook-up	$1,195

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MIDI INTERFACES, PATCH BAYS, AND PROCESSORS

Manufacturer	Model	Computer Interface	# of MIDI Ins/Outs	Merging	Filtering	Rechannelizing	Controller Remapping	Keyboard Split/Zones (#)	# of Patches	Synchronization (type)	Special Features	Price
Opcode	Studio 64X	Mac and PC	4/5	Yes	Yes	Yes	Yes	Yes (Mac only, 128)	4 user/ 4 preset	Reads/writes SMPTE to MTC; conversion routes MTC and MMC	Panic Button, Tune setting, Velocity scaling, and other advanced MIDI processing thru Studio Patches Editor (Mac only); Thru port for printer/modem hook-up	$319.95
Opcode	Studio 64XTC	Mac and PC	4/6	Yes	Yes	Yes	Yes	Yes, up to 128	4 user/ 4 preset	ADAT sync; simultaneous word clock and Superclock out, video/black burst ref in, SMPTE, MTC, routes MMC, MTC	Panic button, networks with Studio 4, fully OMS compatible, Velocity scaling and advanced MIDI processing with OMS studio patches (Mac only); see Synchronizers chart for additional information	$495
Opcode	Translator II	Mac	1/3	No	No	No	No	N/A	N/A	Passes MTC	Thru port for modem/printer hook-up and MMC	$59.95
Opcode	Translator Pro	Mac	2/6	No	No	No	No	N/A	N/A	Passes MTC, MMC	Dual Thru ports for modem/printer hook-up	$109.95
Rolls	RFX MP1288 MIDI Wizard	N/A	1 in/1 out/share	Yes	No	No	Yes	N/A	128	No	Will send MIDI Song Select and Start/Stop; sends up to 8 program changes on 8 MIDI channels with one switch; 8 Continuous Controller inputs	$199.99
Steinberg	Micro MIDI Interface	Mac	1/1	No	No	No	No	N/A	0	N/A	Portable; no power supply required	$49
Steinberg	PC MIDI-1	PC	1/1	No	No	No	No	N/A	0	No	ISA slot	$69
Steinberg	PC MIDI-3	PC	1/3	No	No	No	No	N/A	0	No		$219

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MICROPHONES

Manufacturer	Model	Type	Polar Patterns	Internal Roll-Off	Internal Pad
AKG	C 1000S	Condenser	Cardio d, hypercardioid w/PPC 1000	N/A	N/A
AKG	C 3000	Condenser	Cardioid, hypercardioid	75 Hz/150 Hz	-10 dB, 1-20 dB, switchable
AKG	C 400BL/BL 1	Condenser	Hypercardioid	N/A	N/A
AKG	C 414B/ULS	Condenser	Cardioic, hypercardioid, omni, figure-8	75 Hz/150 Hz	-10 dB/-20 dB, switchable
AKG	C 414B/TLII	Condenser	Cardioid, hypercardioid, omni, figure-8	75 Hz/150 Hz	-10 dB/-20 dB, switchable
AKG	C 416	Condenser	Hypercardioid	N/A	N/A
AKG	C 418	Condenser	Hypercardioid	N/A	N/A
AKG	C 419	Condenser	Hypercardioid	N/A	N/A
AKG	C 420	Condenser	Cardioid	N/A	N/A
AKG	C 480B/CK 62ULS	Condenser	Omnidirectional	75 Hz/150 Hz	-10 dB
AKG	C 480B/CK 63ULS	Condenser	Hypercardioid	75 Hz/150 Hz	-10 dB
AKG	C 535EB	Condenser	Cardioid	100 Hz/500 Hz	-14 dB
AKG	C 547BL	Condenser	Hypercardioid boundary layer	200 Hz	N/A
AKG	C 5600	Condenser	Cardioid	150 Hz	N/A
AKG	C 562BL	Condenser	Hemispherical omnidirectional	N/A	N/A
AKG	C 5900	Condenser	Hypercardioid	150 Hz	N/A
AKG	C 680BL	Condenser	Cardioid boundary layer	N/A	N/A
AKG	C 747	Condenser	Hypercardioid	150 Hz	N/A
AKG	D 112	Dynamic	Cardioid	N/A	N/A
AKG	D 230	Dynamic	Omnidirectional	N/A	N/A
AKG	D 3700/D 3700S	Dynamic	Hypercardioid	N/A	N/A
AKG	D 3800	Dynamic	Hypercardioid	N/A	N/A
AKG	D 3900	Dynamic	Hypercardioid	150 Hz	N/A
AKG	D 65S	Dynamic	Hypercardioid	N/A	N/A
AKG	D 770	Dynamic	Cardioid	N/A	N/A
AKG	D 880/D 880S	Dynamic	Supercardioid	N/A	N/A
AKG	CK 91 (w/SE 300B)	Condenser	Cardioid	75 Hz	-10 dB
AKG	CK 92 (w/SE 300B)	Condenser	Omnidirectional	75 Hz	-10 dB
AKG	CK 93 (w/SE 300B)	Condenser	Hypercardioid	75 Hz	-10 dB
AKG	CK 94 (w/SE 300B)	Condenser	Figure-8	75 Hz	-10 dB
AKG	C 480B-CK 61	Condenser	Cardioid	70 Hz/150 Hz	-10 dB
Audio Technica	AT4033/SM	Condenser	Cardioid	80 Hz	-10 dB
Audio Technica	AT4041	Condenser	Cardioid	80 Hz	N/A
Audio Technica	AT4050	Condenser	Cardioid, omni, figure-8	80 Hz	-10 dB
Audio Technica	AT4051	Condenser	Cardioid	80 Hz	N/A
Audio Technica	AT822	Condenser	Cardioid stereo	150 Hz	N/A
Audio Technica	ATM10a	Condenser	Omnidirectional	N/A	N/A
Audio Technica	ATM23HE	Dynamic	Hypercardioid	N/A	N/A
Audio Technica	ATM25	Dynamic	Hypercardioid	N/A	N/A
Audio Technica	ATM31a	Condenser	Cardioid	N/A	N/A
Audio Technica	ATM63HE	Dynamic	Hypercardioid	N/A	N/A
Audio Technica	ATM87R	Condenser	Cardioid	80 Hz	N/A
Audio Technica	MB4000C	Condenser	Cardioid	N/A	N/A
Audio Technica	PRO 37R	Condenser	Cardioid	N/A	N/A
Audio Technica	AT3525	Condenser	Cardioid	80 Hz	-10 dB
Audio Technica	AT3527	Condenser	Omnidirectional	80 Hz	-10 dB
Audio Technica	AT3528	Condenser	Cardioid	80 Hz	-10 dB
Audio Technica	ATM33a	Condenser	Cardioid	N/A	N/A

Max. SPL	Frequency Response	Suggested Applications	Special Features	Price
137 dB	50 Hz–20 kHz	Personal studio, field recording	Battery powered option	$274
137 dB	20 Hz–20 kHz	General-purpose studio recording, sound reinforcement		$438
95 dB	40 Hz–14 kHz	Table-top mic		$148/73.80
140 dB	20 Hz–20 kHz	Multipurpose studio mic		$1,285
140 dB	10 Hz–20 kHz	Multipurpose studio mic, esp. vocals, string instruments		$1,751
121 dB	20 Hz–20 kHz	Instrument and amplifier	Permanent or temporary mount	$308
131 dB	50 Hz–20 kHz	Percussion	Clip-on mount	$308
126 dB	20 Hz–20 kHz	Horn/brass	Clip-on mount	$308
126 dB	20 Hz–20 kHz	Vocals	Headset	$334
144 dB	20 Hz–20 kHz	Premium ambient recording or analysis mic		$1,005
144 dB	20 Hz–20 kHz	Premium ambient recording or analysis mic		$1,005
137 dB	20 Hz–20 kHz	Premium handheld vocal		$322
133 dB	30 Hz–18 kHz	Rugged construction for edge-of-stage theatrical or conference	Shock-mounted	$579
140 dB	20 Hz–22 kHz	Instrument stage mic, broadcast		$748
130 dB	20 Hz–20 kHz	Piano, conference recording, security/surveillance		$798
140 dB	20 Hz–22 kHz	Rugged stage mic for handheld vocal		$580
115 dB	60 Hz–20 kHz	Conference table, lecterns	Shock-mounted	$268
133 dB	30 Hz–18 kHz	Snare drum, acoustic guitar, conference rooms, lecterns		$579
N/A	20 Hz–17 kHz	Bass drums, bass instruments		$382
N/A	40 Hz–20 kHz	Electronic news gathering (handheld)		$248
156 dB	50 Hz–20 kHz; 20 Hz–18 kHz	Rugged stage vocal mic or instruments	Available with on/off switch	$178.80/$192
156 dB	40 Hz–21 kHz	Rugged stage vocal mic or instruments		$256
156 dB	40 Hz–21 kHz	Rugged stage vocal mic or instruments	Treble boost at 4–5 kHz	$308
141 dB	70 Hz–20 kHz	Handheld vocal mic	On/off switch	$95
147 dB	60 Hz–20 kHz	Stage vocals or instruments		$124.80
147 dB	60 Hz–20 kHz	Handheld vocal mic	Available with on/off switch	$138/$150
132 dB	20 Hz–20 kHz	General-purpose studio and live mic		$554
132 dB	20 Hz–20 kHz	General-purpose studio and live mic		$554
132 dB	20 Hz–20 kHz	General-purpose studio and live mic		$554
132 dB	20 Hz–20 kHz	Ambient and mid-side recording		$916
144 dB	20 Hz–20 kHz	Premium ambient recording or analysis mic		$780
145 dB	30 Hz–20 kHz	General purpose	Includes AT8441 shock-mount	$725
145 dB	20 Hz–20 kHz	Instruments		$395
149 dB	20 Hz–20 kHz	General purpose	Includes AT8441 shock-mount	$995
143 dB	20 Hz–20 kHz	Instruments		$700
125 dB	30 Hz–20 kHz	Stereo recording		$399
137 dB	20 Hz–18 kHz	Group vocals, instruments	Battery or phantom power	$210
N/A	70 Hz–16 kHz	Snare drum		$235
N/A	30 Hz–15 kHz	Kick drum		$278
137 dB	30 Hz–20 kHz	General purpose	Battery or phantom power	$250
N/A	50 Hz–18 kHz	Instrument amp		$210
151 dB	30 Hz–20 kHz	Kick drum		$299
124 dB	50 Hz–18 kHz	General purpose		$125
141 dB	30 Hz–15 kHz	Instrument		$175
146 dB	30 Hz–20 kHz	Vocals, general purpose	Includes shock mount	$399
148 dB	30 Hz–20 kHz	General purpose		$299
147 dB	30 Hz–20 kHz	General purpose		$299
137 dB	30 Hz–20 kHz	General purpose	Battery or phantom power	$290

MICROPHONES

Manufacturer	Model	Type	Polar Patterns	Internal Roll-Off	Internal Pad
Audio Technica	AT825	Condenser	Cardioid stereo	Yes	N/A
Audio Technica	ATM35	Condenser	Cardioid	Yes	N/A
Audix	D1	Dynamic	Hypercardioid	N/A	N/A
Audix	D2	Dynamic	Hypercardioid	N/A	N/A
Audix	D3	Dynamic	Hypercardioid	N/A	N/A
Audix	D4	Dynamic	Hypercardioid	N/A	N/A
Audix	OM3-xb	Dynamic	Hypercardioid	N/A	N/A
Audix	OM6	Dynamic	Hypercardioid	N/A	N/A
Audix	OM7	Dynamic	Hypercardioid	N/A	N/A
Audix	SCX-1	Condenser	Cardioid, hypercardioid, omni, omni presence	N/A	N/A
Audix	OM5	Dynamic	Hypercardioid	N/A	N/A
Benson Audio Labs	B2	Condenser PZM	Cardioid	N/A	N/A
Benson Audio Labs	BA 30	Dynamic	Cardioid	N/A	N/A
Benson Audio Labs	ND 90	Dynamic	Hypercardioid	N/A	N/A
beyerdynamic	M-130	Dynamic ribbon	Figure-8	N/A	N/A
beyerdynamic	M-160	Dynamic ribbon	Hypercardioid	N/A	N/A
beyerdynamic	M-201T6	Dynamic	Hypercardioid	N/A	N/A
beyerdynamic	M-88T6	Dynamic	Hypercardioid	N/A	N/A
beyerdynamic	MCE-90	Condenser	Cardioid	Switchable @ 100 Hz	Switchable to -15 dB
beyerdynamic	MC-740	Condenser	Wide cardioid, cardioid, hypercardioid, omni, figure-8	N/A	-10 dB
beyerdynamic	MC-834	Condenser	Cardioid	80 Hz/160 Hz	-10 dB
beyerdynamic	MCE-84	Condenser electret	Cardioid	N/A	N/A
beyerdynamic	MCE-82	Electret condenser	Dual cardioid	120 Hz	N/A
BPM Studio Technik	CR-4N	Small condenser	Cardioid	N/A	N/A
BPM Studio Technik	CR-73 II	Condenser, dual large diaphragm	Cardioid, omni	80 Hz	-10 dB
BPM Studio Technik	CR-95	Condenser, dual large diaphragm	Cardioid, omni, figure-8	150 Hz	-10 dB
BPM Studio Technik	TB-95	Tube, dual large diaphragm	Cardioid, omni, figure-8	150 Hz	-10 dB
BPM Studio Technik	BPM CR-10	Condenser	Cardioid	N/A	N/A
CAD	90	Dynamic	Cardioid	N/A	N/A
CAD	95	Condenser	Cardioid	N/A	N/A
CAD	Equitek E100	Condenser	Supercardioid	80 Hz	-20 dB
CAD	Equitek E200	Condenser	Cardioid, figure-8, omni	80 Hz	-20 dB
CAD	Equitek E300	Condenser	Cardioid, figure-8, omni	80 Hz	-20 dB
Carvin	CM50	Dynamic	Cardioid	N/A	N/A
Carvin	CM67	Dynamic	Cardioid	N/A	N/A
Carvin	CM90E	Condenser	Cardioid	N/A	N/A
Carvin	CM68	Dynamic	Cardioid	N/A	N/A
Coles	Coles 4104	Ribbon	Figure-8	50 Hz	N/A
Coles	Coles 4038	Ribbon	Figure-8	N/A	N/A
Countryman	Isomax Headset Microphone	Condenser	Hypercardioid, cardioid	N/A	N/A

Max. SPL	Frequency Response	Suggested Applications	Special Features	Price
126 dB	30 Hz–20 kHz	Stereo recording	Battery or phantom power	$525
145 dB	30 Hz–20 kHz	Horns, drums, instruments	Battery or phantom power; clip-on mount	$350
144 dB	46 Hz–18 kHz	Snare, percussion		$219
144 dB	44 Hz–18 kHz	Toms, congas, percussion		$219
144 dB	50 Hz–19 kHz	Snare, timbale, trumpet, electric guitar		$229
144 dB	38 Hz–19 kHz	Kick drum, acoustic bass, piano, sax		$329
144 dB	50 Hz–18 kHz	General purpose		$199
144 dB	40 Hz–19 kHz	Vocals		$349
144 dB	45 Hz–19 kHz	Vocals		$359
128 dB	20 Hz–20 kHz (omnis); 40 Hz–20 kHz (cardioid and hypercardioid)	Any acoustic instrument	Interchangeable capsules	$299 for preamp; $299 per capsule
144 dB	48 Hz–19 kHz	Vocal		$299
141 dB	30 Hz–20 kHz	Piano, acoustic instruments, group vocals	Battery/phantom-power adapter	$259.90
145 dB	50 Hz–15 kHz	Drums, guitar amps, female vocals	Rugged, all-steel windscreen	$169.90
145 dB	50 Hz–18 kHz	Vocals		$349.90
116 dB	40 Hz–18 kHz	Digital recording, ambient miking, piano, strings		$659
116 dB	40 Hz–18 kHz	Stringed instruments, violins, violas, cellos		$659
120 dB	40 Hz–18 kHz	Percussion mic (snare, rack toms, hi-hat)		$289
120 dB	30 Hz–20 kHz	General purpose		$399
154 dB	30 Hz–20 kHz	Piano, strings, percussion, woodwinds, drums, vocals, horns, organ, combo amps, acoustic guitar		$649
134 dB/144 dB	20 Hz–20 kHz	Vocals, piano, percussion, overhead, voice-overs		$1,599
130 dB/140 dB/150 dB	20 Hz–20 kHz	Vocals, pianos, strings, brass, percussion, sampling, voice-overs		$999
138 dB	50 Hz–18 kHz	Brass, percussion	Battery	$399
120 dB	50 Hz–20 kHz	Overhead on drums, piano, multiple background vocals		$799
126 dB	30 Hz–20 kHz	Strings, acoustic instruments, overheads, stereo pairs	Mic clip, pop filter	$469.95; $489.95 (omni version)
124 dB	40 Hz–18 kHz	General purpose, vocals, amp close-miking	Custom road case; shock-mount; pop filter, cable	$999.95
148 dB	20 Hz–20 kHz	Vocals, overheads, amp close-miking	Transformerless; custom road case, shock-mount; pop filter, cable	$1,199.95
138 dB	20 Hz–20 kHz	Vocals, acoustic instruments including drums and strings	Custom road case; power supply (110 or 220V); shock-mount; cable	$1,849.99
136 dB	20 Hz–20 kHz	Project studio, overdubs	Includes road case; suspension; cable; windscreen	$549.95
N/A	40 Hz–16 kHz	Vocals, instrument amps		$199
130 dB	40 Hz–20 kHz	Vocals, instruments, esp. live performance		$239
148 dB	10 Hz–18 kHz	Vocals, instruments, overhead, drum kit (including kick)	Performs for 6 hours on 2 NiCad batteries	$469
148 dB	10 Hz–18 kHz	Vocals, orchestra, acoustic guitar, kick drum	Performs for 6 hours on 2 NiCad batteries	$749
148 dB	10 Hz–20 kHz	Recording, voice-overs, broadcast, sound reinforcement	Performs for 6 hours on 2 NiCad batteries	$999
N/A	50 Hz–14 kHz	Vocals	On/off switch	$49.95
N/A	40 Hz–15 kHz	General purpose		$89.95
132 dB	30 Hz–20 kHz	General purpose	Battery or phantom power	$114.95
N/A	45 Hz–15 kHz	Vocals		$89.95
120 dB	60 Hz–12 kHz	Designed for natural vocal quality in noisy and windy locations, teleconferencing, multimedia, on-location broadcast of any kind	Lip bar to set working distance for flat voice response	$660
125 dB/150 dB	30 Hz–15 kHz	Drum overheads, sax, string instruments, brass, voice, electric guitar, bass		$1,195
150 dB	20 Hz–20 kHz	Vocals	Phantom version has pop-free switch	$307.92

MICROPHONES

Manufacturer	Model	Type	Polar Patterns	Internal Roll-Off	Internal Pad
Countryman	Isomax I	Condenser	Hypercard oid, cardioid, omni, bi-directional	N/A	N/A
Crown	CM-311A	Condenser	Differoid	N/A	N/A
Crown	CM-700	Condenser	Cardioid	80 Hz/150 Hz	N/A
Crown	PZM 6D	PZM	Hemisphere	N/A	N/A
Crown	SASS-PMKII	Condenser	Stereo PZM	100 Hz	N/A
Crown	CM-150	Condenser	Omnidirectional	N/A	N/A
DPA	DPA 4006	Prepolarized condenser	Omnidirectional	N/A	N/A
DPA	DPA 4007	Prepolarized condenser	Omnidirectional	N/A	N/A
DPA	DPA 4060	Prepolarized condenser miniature mic	Omnidirectional	N/A	N/A
Earthworks	TC-30K	Condenser	Omnidirectional	N/A	N/A
Earthworks	TC-40K	Condenser	Omnidirectional	N/A	N/A
Earthworks	QTC1	Condenser	Omnidirectional	N/A	N/A
Earthworks	Z30X	Condenser	Enhanced Cardioid	N/A	N/A
Electro-Voice	N/D 168	Dynamic	Cardioid	N/A	N/A
Electro-Voice	N/D 267	Dynamic	Cardioid	N/A	N/A
Electro-Voice	N/D 367	Dynamic	Cardioid	N/A	N/A
Electro-Voice	N/D 468	Dynamic	Supercardioid	N/A	N/A
Electro-Voice	N/D 767	Dynamic	Supercardioid	Yes	N/A
Electro-Voice	N/D 967	Dynamic	Supercardioid	Yes	N/A
Electro-Voice	N/D 868	Dynamic	Cardioid	N/A	N/A
Electro-Voice	RE20	Dynamic	Variable-D cardioid	80 Hz	N/A
Electro-Voice	RE38N/D	Dynamic	Cardioid	N/A	N/A
Electro-Voice	RE200	Condenser	Cardioid	N/A	N/A
Electro-Voice	RE500	Condenser	Cardioid	N/A	N/A
Electro-Voice	RE1000	Condenser	Supercardioid	130 Hz	N/A
Event Electronics (Røde)	NT1	Large-diaphragm condenser	Cardioid	N/A	N/A
Event Electronics (Røde)	NT2	Large-diaphragm condenser	Omni, cardioid	150 Hz	-10 dB
Event Electronics (Røde)	Classic	Large-diaphragm tube condenser	Omni through cardioid, figure-8 (9 positions)	125 Hz	-10 dB/-20 dB
Fostex	221	Dynamic	Cardioid	N/A	N/A
Fostex	321	Dynamic	Cardioid	N/A	N/A
Fostex	521	Dynamic	Cardioid	N/A	N/A

Max. SPL	Frequency Response	Suggested Applications	Special Features	Price
150 dB	Isomax II H, C, B: 50 Hz–20 kHz/ Isomax II O: 20 Hz–20 kHz	General instrument/SR and exotic (acoustical measurements)	Miniature size; optional 18V battery power module; special version available for direct powering from wireless transmitters	$278.05
150 dB	50 Hz–15 kHz	Vocals		$299
151 dB	30 Hz–20 kHz	Drums, brass, strings, guitar		$289
150 dB	20 Hz–20 kHz	Piano		$369
150 dB	20 Hz–20 kHz	Orchestra, church ensemble		$950
130 dB	20 Hz–20 kHz	General purpose		$795
143 dB	20 Hz–20 kHz	Close-miking vocals, strings, woodwinds; digital recording		$2,060
155 dB	20 Hz–40 kHz	Close-miking drums, percussion, brass		$2,060
134 dB	20 Hz–20 kHz	General purpose	5.4 mm size; handles heat, sweat, humidity	$400 (pigtail version)
150 dB	9 Hz–30 kHz	Drums, acoustic and electric guitar, bass		$500; $1,100 (matched pair in cherry box)
150 dB	9 Hz–40 kHz	General purpose		$800; $1,700 (matched pair in cherry box)
140 dB	4 Hz–40 kHz	Classical location recording and when natural, uncolored sound is desired.	Quiet, time-coherent sound	$950; $2,000 (matched pair in cherry box)
145 dB SPL	30 Hz–30 kHz	Voice, guitar, drums, general purpose	Natural uncolored sound on axis, excellent rejection off axis	$950; $2,000 (matched pair in cherry box)
141 dB	25 Hz–15 kHz	Snare drum	Three-way swivel-mount clamp; very small capsule; zippered gig bag	$182
144 dB	65 Hz–19 kHz	Vocals	Stand clamp; zippered gig bag	$140
144 dB	60 Hz– 17 kHz	Female vocals	Specially shaped frequency contour to accentuate the harmonic overtones of the female voice; stand clamp; zippered gig bag	$200
144 dB	60 Hz–22 kHz	Musical instruments	Flexible pivoting yoke for easy positioning; zippered gig bag	$232
144 dB	25 Hz–22 kHz	Vocals	Large diaphragm N/DYM transducer, multi-stage shock mount for low handling noise; zippered gig bag	$342
142 dB	50 Hz–13 kHz	Vocals	Unusually high gain before feedback; designed for live performance; Removable grill for easy cleaning	$282
140 dB	20 Hz–10 kHz	Kick drum	Tuned to the attack frequencies of bass drums	$282
148 dB	45 Hz–18 kHz	Bass, drum, vocals, upright bass, toms, electric guitars	Variable-D design exhibits no proximity effect	$655
144 dB	25 Hz–20 kHz	Toms, snare, guitar cabinets	16-position equalization switch for unusual flexibility	$582
130 dB	50 Hz–18 kHz	Drums (overhead, hi-hat, snare), acoustic guitar, brass		$310
148 dB	80 Hz–18 kHz	Vocals	Handheld	$375
130 dB	70 Hz–18 kHz	Vocals, room miking, wind instruments, acoustic guitar		$774
135 dB	20 Hz–20 kHz	General purpose	High-impact carrying case	$499
135 dB	20 Hz–20 kHz	Vocals, acoustic guitar, woodwinds	Shock-mount; flight case	$749
130 dB	20 Hz–20 kHz	Vocals, critical instrument recording	External power supply w/custom 30' cable; polar patterns and internal roll-off switchable from power supply; tube and diaphragm are internally shock-mounted; model 6072 tube	$1,995
N/A	100 Hz–16 kHz	Vocals		$35
N/A	90 Hz–16 kHz	Vocals		$55
N/A	60 Hz–16 kHz	Vocals		$75

MICROPHONES

Manufacturer	Model	Type	Polar Patterns	Internal Roll-Off	Internal Pad
Groove Tubes	MD-1A	Tube condenser, single-diaphragm electret	Cardioid	N/A	N/A
Groove Tubes	MD-2A	Tube condenser, single-diaphragm electret	Cardioid	N/A	0 dB/-20 dB (variable)
Groove Tubes	MD-3A	Tube condenser, single-diaphragm electret	Omni, cardioid	N/A	0 dB/-20 dB (variable)
Groove Tubes	MD-5sc	Solid-state condenser, dual large diaphragm	Cardioid	75 Hz	-10 dB
Groove Tubes	MD-6TM	Tube condenser, dual diaphragm	Omni, cardioid, hypercardioid, figure-8	75 Hz	-10 dB
Groove Tubes	MD-5sm	A FET condenser	Cardioid, Omni, Figure 8	75 Hz	-10 dB
JBL	M50S	Dynamic	Cardioid	N/A	N/A
JBL	M70S	Dynamic	Cardioid	N/A	N/A
JBL	M90S	Dynamic	Cardioid	N/A	N/A
Langevin/Manley	CR-3A	FET, large-diaphragm condenser	Cardioid	100 Hz	-10 dB
Lawson	L47C	Large-diaphragm tube condenser	Cardioid	N/A	-12 dB
Lawson	L47SH	Phantom-powered large-diaphragm condenser	Cardioid	100 Hz	-10 dB/-20 dB
Lawson	L47MP	Large-diaphragm tube condenser	Omni, cardioid, figure-8 (variable between patterns)	N/A	-12 dB
Lawson	L47S	Phantom-powered large-diaphragm condenser	Cardioid	100 Hz	-10 dB
Manley Labs	Manley Reference Gold Microphone	Large-diaphragm condenser	Variable via potentiometers	N/A	10 dB
Manley Labs	Manley Reference Stereo Gold Microphone	2 x Large- diaphragm condenser	Variable via 2 potentiometers	N/A	2 x 10 dB
Manley Labs	Manley Reference Cardioid Microphone	Large-diaphragm condenser	Cardioid	N/A	10 dB
MicroTech	Gefell MT 711S	Condenser	Cardioid	90 Hz	-10 dB
MicroTech	Gefell VMT 70S	Condenser	Cardioid, omni, figure-8	90 Hz	-10 dB
MicroTech	Gefell M300	Condenser	Cardioid	N/A	N/A
Neumann	KM 120	Small-diaphragm condenser	Figure-8	N/A	-10 dB
Neumann	KM 130	Small-diaphragm condenser	Omni	N/A	-10 dB
Neumann	KM 140	Small-diaphragm condenser	Cardioid	N/A	-10 dB
Neumann	KM 184	Small-diaphragm condenser	Cardioid	N/A	N/A
Neumann	TLM 193	Large-diaphragm condenser	Cardioid	N/A	N/A
Neumann	TLM 103	Large-diaphragm condenser	Cardioid	N/A	N/A
Peavey	PVM T-9000	Tube mic w/self-polarized condenser capsule	Cardioid	N/A	-10 dB
Schoeps	CCM 4	Condenser	Cardioid	N/A	N/A
Schoeps	CMBI	Condenser	Cardioid, omni, figure-8	N/A	-15 dB
Schoeps	CMC 641	Condenser	Supercardioid	N/A	N/A
Roland	DR-10	Dynamic	Hypercardioid	N/A	N/A
Roland	DR-20	Dynamic	Hypercardioid	N/A	N/A

Max. SPL	Frequency Response	Suggested Applications	Special Features	Price
132 dB	40 Hz–18 kHz	Vocals, electronic musical instruments, percussion, winds	Sys 1A includes mic, P52m power supply, and EC1 cable	$780 mic only $1,195 Sys 1A
130 dB/150 dB	40 Hz–25 kHz	Vocals, strings, brass, percussion, Foley	Includes MD-2A and ST1 shock mount; Sys 2A includes P52m power supply, ST1 Shock Therapy, EC1 cable, and hard shell case	$1,295 $1,695 Sys 2A
130 dB/150 dB	20 Hz–20 kHz	Vocals, large percussion, piano	Includes ST1 Shock Therapy and hard shell case; Sys 3A includes MD-3A, P52m power supply, ST1 Shock Therapy, EC1 connecting cable, and hard shell case	$1,795 $2,195 Sys 3A
146 dB	20 Hz–18 kHz	Vocals, strings, percussion, woodwinds, Foley	Includes MD5sc shock mount and hard shell case	$649
146 dB	20 Hz–18 kHz	Vocals, guitar, acoustic strings, percussion, woodwinds, horns, Foley	Includes shock mount and hard shell case; system includes P52m power supply, shock mount, EC-6 cable, and hard shell case	$1,049 $1,395 system
134 dB to 144 dB	20 Hz–18 kHz	Vocals, strings, percussion, woodwinds, Foley	Includes shock mount and hard shell case	$799
N/A	70 Hz–15 kHz	General-purpose vocal and instrument mic		$69
N/A	70 Hz–16 kHz	General-purpose vocal and instrument mic		$99
N/A	60 Hz–18 kHz	General-purpose vocal and instrument mic		$135
132 dB	40 Hz–16 kHz	General purpose	Shockmount	$800
124 dB	20 Hz–20 kHz	Vocals, acoustic guitar, strings, piano, choirs, orchestra, saxophone	30' Mogami cable; Pelican carrying case; 5-year warranty	$1,695
145 dB	20 Hz–20 kHz	High-intensity applications, esp. bass drums	Pelican carrying case; 5-year warranty	$1,295
128 dB	20 Hz–20 kHz	Vocals, acoustic guitar, strings, piano, choirs, orchestra, saxophone	30' Mogami cable; Pelican carrying case; 5-year warranty	$1,995
138 dB	20 Hz–20 kHz	Vocals, acoustic guitar, strings, piano, choirs, orchestra, horns	Pelican carrying case; 5-year warranty	$1,295
150 dB	10 Hz–25 kHz	Ultra high quality recording	All tube; line output option	$5,500
150 dB	10 Hz–25 kHz	Ultra high quality stereo recording	All tube; 1 fixed and 1 rotatable capsule; line output option	$8,000
135 dB	20 Hz–20 kHz	Vocal & general recording	All tube; line output option	$3,000
144 dB	40 Hz–18 kHz	Vocals	Cable; windscreen; standmount	$895
149 dB	40 Hz–18 kHz	General purpose	Cable; windscreen; standmount	$1,295
135 dB	40 Hz–18 kHz	Drums, guitar, chorus		$599
148 dB w/pad, 138 dB w/o	20 Hz–20 kHz	As part of stereo pair for midside or Blumlein recording		$1,275
148 dB w/pad, 138 dB w/o	20 Hz–20 kHz	Room miking, strings, piano, choir		$1,060
148 dB w/pad, 138 w/o	20 Hz–20 kHz	Acoustic guitar, drum overheads, instrument miking, classical spot, overhead, piano		$1,060
138 dB	20 Hz–20 kHz	Acoustic guitar, drum overheads, hi-hat, strings, percussion, piano		$699
140 dB	20 Hz–20 kHz	Vocals, drum overheads, acoustic guitar, strings, sax, percussion, piano		$1,495
138 dB	20 Hz–20 kHz	Vocals, acoustic guitar, strings, Foley, acoustic bass, piano	7 dB (A) self noise	$995
137 dB	20 Hz–20 kHz	Studio vocals, acoustic instruments	Integral shock suspension; 200 Hz low-cut switch; price includes mic, cable, shock mount system, and power module	$1,299
132 dB	18 Hz–22 kHz	15' cable		$1,470
132 dB	18 Hz–22 kHz	Portable recorder	Internal battery; 15' cable	$1,190
132 dB	18 Hz–22 kHz	Film and video boom	Interchangeable capsules	$1,455
130 dB	60 Hz–15 kHz	General purpose	on/off switch; wind screen; hard shell case	$95
130 dB	60 Hz–15 kHz	General purpose	on/off switch; wind screen; hard shell case	$150

MICROPHONES

Manufacturer	Model	Type	Polar Patterns	Internal Roll-Off	Internal Pad
Samson	Q	Dynamic	Hypercardioid	N/A	N/A
Samson	S11	Dynamic	Undirectional cardioid	N/A	N/A
Samson	S12	Dynamic	Hypercardioid	N/A	N/A
Samson	Q3	Dynamic	Hypercardioid	Switchable	Switchable
Samson	Q2	Dynamic	Cardioid	Switchable	Switchable
Sanken	CU-31	Condenser	Cardioid	N/A	N/A
Sennheiser	MD 421 II	Dynamic	Cardioid	30 Hz–1 kHz (5 positions)	N/A
Sennheiser	MD 425	Dynamic	Supercardioid	N/A	N/A
Sennheiser	MD 504	Dynamic	Cardioid	N/A	N/A
Sennheiser	ME 64/K 6	Electret condenser	Cardioid	120 Hz	N/A
Shure	Beta 52	Dynamic	Supercardioid	N/A	N/A
Shure	Beta 87	Condenser	Supercardioid	N/A	N/A
Shure	BG4.1	Condenser	Cardioid	N/A	N/A
Shure	BG5.1	Condenser	Cardioid	N/A	N/A
Shure	SM57	Dynamic	Cardioid	N/A	N/A
Shure	SM58	Dynamic	Cardioid	N/A	N/A
Shure	SM7	Dynamic	Cardioid	N/A	N/A
Shure	SM81	Condenser	Cardioid	80 Hz/100 Hz	-10 dB
Shure	SM94	Condenser	Cardioid	N/A	N/A
Shure	SM98	Condenser	Cardioid, supercardioid	80 Hz	-10 dB
Shure	VP88	MS stereo condenser	Mid: cardioid; side: bidirectional	80 Hz	N/A
Sony	C48	Condenser	Uni-, omni-, bidirectional	Yes	-10 dB
Sony	F740	Dynamic	Unidirectional	N/A	N/A
Sony	F780	Dynamic	Unidirectional	N/A	N/A
Sony	ECM-MS59J7	Stereo condenser	m-s, x-y	N/A	N/A
Soundelux	U195	Condenser	Cardioid	100 Hz	variable
Stedman	LD23	Dynamic	Supercardioid	N/A	N/A
Stedman	N90	Dynamic	Cardioid	N/A	N/A
Stedman	SC3	Condenser	Cardioid	100 Hz	-9 dB/-18 dB
Stedman	C15	Condenser	Cardioid	N/A	N/A
Stedman	LD50	Dynamic	Supercardioid	N/A	N/A
Studiomaster	KM-81	Dynamic	Cardioid	N/A	N/A
Telex	TD-16s	Dynamic	Unidirectional	N/A	N/A
Telex	TD-22	Dynamic	Cardioid	N/A	N/A
Telex	TD-26	Dynamic	Hypercardioid	N/A	N/A
Telex	Cobalt SE-60	Permanently charged, back plate condenser	Cardioid	N/A	N/A
Yorkville Sound	Apex 350	Dynamic	Hypercardioid	N/A	N/A
Yorkville Sound	Apex 380	Dynamic	Hypercardioid	N/A	N/A
Yorkville Sound	Apex 750	Dynamic	Cardioid	N/A	N/A
Yorkville Sound	Apex 770	Dynamic	Cardioid	N/A	N/A
Yorkville Sound	Apex 850	Dynamic	Cardioid	N/A	N/A
Yorkville Sound	Apex 950	Dynamic	Cardioid	N/A	N/A

Max. SPL	Frequency Response	Suggested Applications	Special Features	Price
137 dB	20 Hz–18.5 kHz	Vocals	Tight hypercardioid pattern helps reduce feedback	$199.99
130 dB	60 Hz–18 kHz	Vocals	Molded case and mic clip	$99.99
130 dB	60 Hz–18 kHz	Vocals	Molded case and mic clip	$149.99
137 dB	50 Hz–15 kHz	Drums/instruments	Mic rotates 90 degrees for optimum positioning in tight miking situations; gold-plated XLR; foam-lined case; mic clip and Euro-metric mic stand adapter included	$224.99
137 dB	50 Hz–15 kHz	Vocal/instruments	Gold-plated XLR; foam-lined case, mic clip and Eurometric mic stand adapter included	$149.99
148 dB	20 Hz–18 kHz	High-pressure sound sources (e.g., brass and drums)	Right-angle version available (model CU-32)	$799
160 dB	30 Hz–17 kHz	Drums, vocals, guitar, amps		$485
145 dB	40 Hz–18 kHz	Vocals	Sculpted steel body	$349
160 dB	40 Hz–18 kHz	Drums (esp. rack toms)	Glass-composite housing	$169
130 dB	40 Hz–20 kHz	Acoustic guitar, drum overhead	Interchangeable capsules	$540
174 dB	20 Hz–10 kHz	Kick drum, bass amp, acoustic bass	Frequency response tailored for bass instruments	$310
142 dB	50 Hz–18 kHz	Vocals, live, studio	Highly consistent polar pattern for gain before feedback	$434
131 dB	40 Hz–18 kHz	Guitar, cymbals, strings, vocals, piano	Battery or phantom power	$220
132 dB	70 Hz–16 kHz	Vocals	Battery or phantom power	$220
N/A	40 Hz–15 kHz	Guitar amp, drums, guitar, vocals	Classic instrument response curve	$146
N/A	50 Hz–15 kHz	General purpose	Classic vocal response curve	$188
N/A	40 Hz–16 kHz	Vocals, bass amp		$566.50
146 dB/135 dB	20 Hz–20 kHz	Guitar, cymbals, strings, vocals, piano		$441.50
141 dB	40 Hz–16 kHz	Guitar, cymbals, strings, vocals, piano	Battery or phantom power	$280
144 dB	40 Hz–20 kHz	Drums, brass, woodwinds	Minicondenser, reliable mounting clamp	$291.50
129 dB	40 Hz–20 kHz	Single point stereo, studio or live	Internal matrix or MS output	$995
128 dB	30 Hz–16 kHz	Vocals, guitar	48V or 9V internal battery	$1,150
N/A	50 Hz–15 kHz	Vocals, guitar		$245
N/A	50 Hz–18 kHz	Vocals, guitar		$350
115 dB	50 Hz–18 kHz	Stereo DAT, overhead piano, guitar, drum	1000-hour battery life; rotating capsule position; x-y/m-s switchable; stand, windscreen, cable; bag	$299
125 dB	20 Hz–20 kHz	General purpose	Two modes, "fat" and "normal," resemble classic and FET	$1,299
157 dB	38 Hz–18 kHz	Live vocals, instruments		$139
155 dB	35 Hz–19 kHz	General purpose		$399
150 dB	25 Hz–20 kHz	General purpose	Vintage and enhanced modes	$998
132 dB	25 Hz–19 kHz	General purpose	Super buffered output	$599
152 dB	37 Hz–19 kHz	Live instruments	Large diaphragm	$139
119 dB	50Hz–15kHz	Personal studio, Live reinforcement	Includes 20' cable XLR-XLR, adapter; carrying case	$59.95
131 dB	45 Hz–17 kHz	Drums, vocals, guitar		$89
128 dB	35 Hz–19 kHz	Drums, vocals, guitar		$135
130 dB	30 Hz–19 kHz	Vocals		$149
Phantom 141 db, Battery 137 db	30 Hz–19 kHz	Instrument or amplifier miking	Cobalt blue finish	$175
N/A	50 Hz–15 kHz	Instruments, vocals		$85
N/A	50 Hz–15 kHz	Vocals, instruments		$115
N/A	50 Hz–15 kHz	Vocals		$55
N/A	50 Hz–15 kHz	Instruments		$45
N/A	15 Hz–12 kHz	Vocals		$35
N/A	80 Hz–12 kHz	Vocals		$25

MICROPHONE PREAMPS

Manufacturer	Model	Type	Channels	EQ	Output Level Control	Instrument/ Line Input
A.R.T.	Dual MP	Tube	2	None	Yes	Yes
A.R.T.	Pro MPA	Tube	2	Adjustable highpass filter (15–150 Hz)	Yes	Yes
A.R.T.	Tube MP	Tube	1	None	Yes	Yes
Aphex Systems	107	Tube	2	Low-cut filter	Yes	No
ARX	MIXX	Transistor	4	Low 100 Hz shelving, Mid 800 Hz Bell, Broad Q, High 10 kHz shelving	Yes	Yes - Line
ARX	MIXXmaster	Transistor	2 Mic, 2 x stereo line	Low 100 Hz shelving, Mid 800 Hz Bell, Broad Q, High 10 kHz shelving	Yes	Yes - Line
ATI	16MX2	Solid state	8 mic/8 line	None	Yes	Yes
ATI	8MX2	Solid state	8 mic/8 line	None	Yes	Yes
ATI	Pro6 Audio Processor	Solid state	1	4-band parametric	No	Yes
Audio Engineering Associates	MS 380 TX	Solid state	2	40 Hz, 18 dB/octave highpass filter	Yes	Yes
Audio Upgrades	High Speed Mic Preamp	Solid state	2	None	Yes	No
Avalon Design	M5	Solid state	1 or 2	Highpass filter, variable, passive	Yes	Yes
Barbetta	Channel One	Solid state	1	3-band parametric	Yes	Yes
Bellari	MP110 Direct Drive	Tube	1	None	Yes	Yes
Bellari	RP220	Tube	2	None	Yes	Yes
Bellari	RP520	Tube	2	None	Yes	Yes
Benchmark	Mic-Man Jr.	Solid state	2	None	No	No
Benchmark	MPS-400	Solid state	4	None	No	No
beyerdynamic	Mike Man	Solid state	2	None	No	No
beyerdynamic	MV100	Solid state	2	Highpass filter (120 Hz)	No	No
beyerdynamic	ProMike	Solid state	2	None	No	No
Bryston	BMP-2	Solid state	2	None	Yes	Yes
BSS Audio	FCS 916	Solid state	1	4-band, fully parametric	Yes	No
Crookwood	Headless Paintpot	Solid state	2	Highpass filter, LF/HF	Yes	No
Crookwood	Hi Voltage Paintpot	Solid state	2	Highpass filter, LF/HF	Yes	No
Crookwood	Mic Bricks	Solid state	2–32 (modular)	Highpass filter, LF/HF	Yes	Yes
Crookwood	Paintpot	Solid state	2	Highpass filter, LF/HF	Yes	No
Crookwood	Rackpot	Solid state	4	Highpass filter	Yes	Yes
D.W. Fearn	V7-1 / V7-2 Vacuum Tube Microphone Preamplifier	Tube	1/2	None	Yes	No
Desert Island	Tubular	Tube	1	3-band	Yes	Yes
DigiTech	VTR1	Tube	2	4-band, sweepable mids	No	Yes
Drawmer	Drawmer 1962	Solid state/tube with 24-bit digital output	2	3-band EQ each channel	Yes	Yes

Fry Warning	Frequency Response	Noise	Total Harmonic Distortion	Special Features	Price
3-segment LED, clip LED	10 Hz–20 kHz	-129 dBu EIN	<0.1%	Phase-reverse switch; phantom power; +20 dB gain switch	$329
10-segment LED	20 Hz–40 kHz	-132 dBu EIN	<0.1%	Output-level VU meters; phase-reverse switch; phantom power; 5-year warranty; highpass filter	$649
Clip LED	10 Hz–20 kHz	-129 dBu EIN	<0.1%	Phase-reverse switch; phantom power	$159
Clip LED	20 Hz–30 kHz	-128 dBu EIN	0.2%	Remote mute; Tubessence; 80 Hz low cut; phantom power; gain and pad	$449
No	20–20 kHz	-90 dB	Below 0.005%	Phantom power; can also mix to a stereo pair for monitoring	$404
No	20–20 kHz	-90 dB	Below 0.005%	Phantom power; can also mix to a stereo pair for monitoring	$377
2 x 10–segment LED	20 Hz–20 kHz	94 dB S/N; -129 dBm EIN	0.003%	2 aux buses, jumper configurable; 1 rackspace; phase reverse, phantom power on each input; individual outputs and 8x2 mixer simultaneously	$2,395
2 x 10–segment LED	20 Hz–20 kHz	94 dB S/N, -129 dBm EIN	0.006%	Variable-threshold limiter on each input channel (8); phase, phantom power, and ground lift on each channel, 8 outputs and 8x2 mixer, 1 rackspace	$1,899
3 x 10–segment LED meter	20 Hz–20 kHz	94 dB S/N, -129 dBm EIN	0.008%	RMS type compressor w/make up gain, and parametric noise gate w/tuneable filters; variable high- and lowpass filters (24 dB/octave), aux output pre/post-EQ or VCA, EQ pre/post-VCA; 1 rackspace; stereo linkable to another unit	$1,995
10 dB headroom warning	10 Hz–30 kHz	111 dB S/N	≤0.04%	Phantom and AB powering; no overshoot; double matrix for MS and X-Y stereo-width adjustment; 120/240 VAC external power supply; 84 dB gain max	$2,295
Clip LED	0.5 Hz–4 MHz	-132.06 dB EIN	0.0005%	4000 V/µs slew rate, military RF-input transistors; audiophile MIT and Infinicap input capacitors; transformerless; high-current output drives 150Ω loads	$1,500
2 clip LEDs, VU meter	5 Hz–120 kHz	-126 dB EIN	0.05%	Pure Class A signal path; optional B&K 4000 high-voltage power-supply card; custom electronics	$1,800
VU meter, clip LED	3 Hz–20 kHz	92 dB S/N	0.0019%	Subsonic filter; noise gate; full-function compressor; phantom power	$799
Clip LED	40 Hz–40 kHz	90 dB S/N	0.1%	Transformer-balanced inputs; phase reversal; input padding	$230
5-segment LED, clip LED	20 Hz–40 kHz	107 dB S/N	0.1%	Transformer-balanced inputs; phase reversal; input padding	$500
Clip LED	20 Hz–40 kHz	107 dB S/N	0.1%	Analog VU meters; transformer-balanced inputs; phase reversal; in/out padding	$600
None	1 Hz–300 kHz	1 dB noise figure	0.001%	Portable AC/DC operation; gain range: +26 to +76 dB	$425
None	1 Hz–500 kHz	1 dB noise figure, EIN = -130 dBu	0.0009%	Active balanced inputs and outputs; switchable phantom power; max output level: +27 dBu; gain range: -2 to +73 dB (with pad)	$1,095
10-segment LED	20 Hz–90 kHz	83.18 dB S/N	0.0005%	Dual-channel microphone preamp for recording	$699
Clip LED	18 Hz–22 kHz	-128 dB EIN	0.03%	Headphone monitoring	$799
Peak LED	20 Hz–90 kHz	-129 dB EIN	0.0005%	Phantom power; optical input transformers; bar-graph indicators	$1,399
Peak LED	20 Hz–20 kHz	-125 dB EIN	0.05%	Fully balanced pure Class A; fully discrete circuitry	$2,500
Peak LED	5 Hz–80 kHz	-127 dBu EIN	0.003%	Highpass/lowpass filters (switchable to bell or shelf mode); phantom power; deep and narrow notch mode for each filter; individual band bypass switching with LCD indication; discrete circuit front end	$999
LED with adjustable threshold	0–500 kHz	-130 dB EIN	0.001%	Portable, remote control only, MS decoders, input impedance, high current line drivers	$2,495
LED with adjustable threshold	0–500 kHz	-130 dB EIN	0.001%	Portable; stand-alone and remote control; separate input for 130V B&K mics; MS decoders; input impedance adjustment; high current line drivers	$3,395
LED with adjustable threshold	0–500 kHz	-130 dB EIN	0.001%	Compact, modular 3U package; remote control only; input impedance adjustment; high current line drivers; optional transformers; distribution feeds; 24-bit AES/EBU output	$550 per channel
LED with adjustable threshold	0–500 kHz	-130 dB EIN	0.001%	Portable, stand alone or remove controllable; MS decoders; input impedance; hi current line drivers	$2,995
LED with adjustable threshold	0–500 kHz	-130 dB EIN	0.001%	1U remote control only; input impedance adjustment; hi-current line drivers; optional 24-bit AES/EBU outputs	$3,295
VU meter	5 Hz–28 KHz	-122 dBu EIN	0.2 %	Phantom Power; phase reverse; 20 dB pad; low impedance input for transformerless mics	V7-1: $2,000; V7-2: $3,500
Clip LED	N/A	N/A	N/A	1 rackspace unit, mic pre-tube midstage; 3-band 20 Hz–20 kHz I.C. EQ with "bypass" mic/line and instrument input (use all-in-line via master)	$699
Clip LED	20 Hz–20 kHz	100 dB S/N	0.02%	Digital outputs (AES/EBU and S/PDIF), effects loop; switchable phase, 20 dB pad, phantom power	$999.95
Yes, with limiter	0 Hz–35 Khz	-128.5 dB at +60 dB of gain	<0.01%	TDIF or Lightpipe in/outs, XLR in/out and AES/EBU, S/PDIF outputs standard; 25-seg output LED per chan.; high/low frequency spectral enhancement; variable Tube Drive; 2-channel mixer; 3 stereo inserts; adjustable word length to 24-bit; 44.1 and 48 kHz word length; 12-position d ther; bit splitting for TDIF or ADAT recording of 24-bit on 16-bit machine	$4,999 TDIF or ADAT; $2,699 Analog

MICROPHONE PREAMPS

Manufacturer	Model	Type	Channels	EQ	Output Level Control	Instrument/ Line Input
Earthworks	LAB102/LAB101	Solid state	N/A	N/A	No	No
Event Electronics	EMP-1	Solid state	1	Highpass filters (switchable)	No	No
Focusrite	Green 1	Solid state	2	None	Yes	Yes
Focusrite	Red 6	Solid state	1	4-band, fully parametric mids	Yes	No
Focusrite	Red 7	Solid state	1	Low-end rolloff	Yes	No
Focusrite	Red 8	Solid state	2	None	Yes	No
Giltronics	2TMP	Tube/transformer in and out	2	None	Yes	No
Giltronics	356AT Mic/Line Preamp	All tube	4, (2 mic/2 line)	None	Yes	Yes 15k Ω line
Giltronics	4 TMP Tube Mic Preamp	All tube	4	None	Yes	No
GML	8300	Solid state	2	None	No	No
Grace Design	201	Solid state	2	None	Yes	Yes
Independent Audio	Calrec RQP 4400	Solid state	4 stereo channels	LF filter; 18 dB/octave; 47, 82, & 150 Hz switch for each channel; HF filter: 12 dB/octave	No	No
Inward Connections	Vac Rac 4000 TMP-1	Tube	1–4 (expandable)	None	Yes	Yes
Joemeek	VC1 Studio Channel	Solid state	1	Enhancer	Yes	Yes
Joemeek	VC2 Tube Channel	Solid state with tube buffered output stage	1	Enhancer	Yes	Yes
Joemeek	VC3 Pro Channel	Solid state	1	Enhancer	Yes	Yes
Manley Labs	Dual Mono 40 dB	Tube	2	None	No	Yes
Manley Labs	Langevin Dual Mono Mic Pre	Solid state	2	High and low shelving	No	Yes
Manley Labs	Manley VOXBOX	Tube	1	Yes	No	Yes
Manley Labs	Mic EQ 500	Tube	1	Stepped LF and HF, passive vintage EQ	Yes	Yes
Manley Labs	Mono 40 dB	Tube	1	None	No	Yes
Midiman	Audio Buddy	Solid state	2	No	No	Yes
Millennia Media	HV-3B	Solid state	2	None	Yes	No
Millennia Media	Quad	Solid state	4	None	Yes	No
Nightpro	PreQ3	Solid state	2 or 4	1-band (selectable frequency), broad-band shelving, LF rolloff	No	Yes
Oram Pro	MWS (Microphone Work Station)	Solid state	2	2 channels of Series 24 console EQ	No	Yes
Oram Pro	Octasonic	Solid state	8	None	No	Yes
Peavey	VMP-2	Tube	2	2-band	Yes	Yes
Posthorn Recordings	EAA PSP 2	Solid state	2	2-band, highpass	Yes	Yes
Precision Analog Systems	MPA 100	Solid state	2	None	Yes	No

Fry Warning	Frequency Response	Noise	Total Harmonic Distortion	Special Features	Price
N/A	2 Hz–100 kHz	N/A	N/A	Multiple outputs per channel; phase reverse; phantom power; standby switches	LAB102 (dual) $1,500, LAB101 (mono) $750
Clip LED	5 Hz–60 kHz	122 dB S/N	0.02%	Internal power supply, extruded aluminum case; phase-reverse switch; phantom power; signal-present LED	$299
Clip LED	10 Hz–150 kHz	-128 dB EIN	0.001%	Switchable highpass filter	$1,099
VU meter	10 Hz–140 kHz	-128 dB EIN	0.003%	Separate in/out switching for filters and EQ; phantom power and phase reversal; output fader	$2,995
VU meter	10 Hz–140 kHz	-128 dB EIN	0.006%	Full dynamics processor with in/out switching; phantom power and phase reversal; output fader	$2,995
VU meter	10 Hz–140 kHz	128 dB EIN	0.003%	Phantom power and phase reversal on each channel	$2,495
None	20 Hz–20 kHz	-73 dB S/N, -123 dB EIN	0.05%	20 dB pad; phase-reverse switch; -10 dB input sensitivity switch; 120 or 240 AC phantom power	$2,100
No	20 Hz–20 kHz	-73 dB S/N, -123 dB EIN	0.05%	Can link mic pre internally to line; can use mic pre's and line amplifiers separately; Riechenbach transformers in and out all four channels; 120/230 VAC operation	$3,495
No	20 Hz–20 kHz	-73 dB S/N, -123 dB EIN	0.05%	Phantom power 120/230 VAC operation; -20 dB pad; -10 dB sensitivity switch; Reichenbach transformers input and output	$3,600
Clip LED	1 Hz–20 kHz	-127 dBu EIN	0.0008%	Switchable phantom power; 1 rackspace; can be upgraded to 4 channels for $1,200	$2,195
Clip LED	20 Hz–300 kHz	91 dB S/N, -130 dB EIN	0.0015%	Transimpedance amplifier architecture; no electrolytic capacitors in signal path; 10 dB output trim control	$1,895
Overload LED indicator 4 dB before clipping	20 Hz–20 kHz	-90 dBu RMS	0.01%	M/S conversion switchable each stereo input	$4,375
VU meter	20 Hz–20 kHz	85 dB S/N, -126 dBm EIN	0.015%	4-channel modular rack; combination mic preamp, opto-limiter, tube EQ	$972–$4,000
VU meter	20 Hz–20 kHz	-125.5 dB EIN	0.02%	Instrument preamp with balanced XLR mic preamp; transformer mic pre with Joemeek photo-optical compression	$1,099.99
VU meter	20 Hz–20 kHz	-125 dB EIN	0.05%	Transformer at the mic pre input with 2 separate amp stages; mono Joemeek compressor; tube gain amplifier	$1,999.99
5-segment LED	20 Hz–20 kHz	-125 dB EIN	0.05%	Five complete stages of amplification; mono Joemeek photo-optical compressor; dual outputs; gain makeup	$399.99
None	10 Hz–60 kHz	80 dB S/N	0.05%	High headroom; high accuracy	$2,400
None	10 Hz–20 kHz	80 dB S/N	0.05%	All discrete	$1,475
VU meter	20 Hz–30 kHz			Opto-compressor, Pultec EQ, de-esser, limiter, etc.	$4,000
VU meter	5 Hz–60 kHz	100 dB S/N	0.025%	Fully differential circuitry	$2,900
None	10 Hz–60 kHz	80 dB S/N	0.05%	High headroom; high accuracy	$1,600
Yes	5 Hz–50 kHz	-122 dBu	0.1%	N/A	$119.95
Clip LED	1 Hz–300 kHz	-129 dB EIN	0.001%	Fully balanced design; B&K mic option	$1,895
Clip LED	1 Hz–300 kHz	-129 dB EIN	0.001%	Fully balanced design	$2,895
Peak LED	15 Hz–40 kHz	-126 dBu EIN	0.003%	Vari Air air-band EQ	$1,595 (2 channels) $2,595 (4 channels)
10-segment LED	20 Hz–20 kHz	90 dB S/N; -127.5 dB EIN	0.005%	Phase switch; phantom power; self-contained power supply; unity gain padless front end; aluminum control knobs; hand-sculpted front panel	$2,195
Preclip LED	20 Hz–40 kHz	-127.5 dB EIN	0.005%	Phase switch; phantom power with indicator on all channels; 8 high-quality mic pres in a 1U rackspace; aluminum control knobs; 2 high-level inputs	$1,795
None	10 Hz–40 kHz	-126 dBu EIN	0.04%	20 dB input pad; phantom power; EQ bypass; input transformer with triple magnetic shielding; 40/80 Hz low cut	$949.99
Clip LED	20 Hz–20 kHz	98 dB S/N	0.1%	Battery operation; transformer inputs; phantom power; peak indicators; small size	$1,185
Clip LED	5 Hz–180 kHz	-127 dB EIN	0.009%	Pure Class A operation; 100% discrete components	$2,195

MICROPHONE PREAMPS

Manufacturer	Model	Type	Channels	EQ	Output Level Control	Instrument/ Line Input
PreSonus	M80 and MP20	Class A, discrete	2 (MP20) or 8 (M80)	Low-cut filter	Yes	Yes
PreSonus	VXP Dynamic Voice Processor	Class A, discrete	1	4-band semiparametric	Yes	No
Radio Design Labs	RU-MP2	Solid state	2	None	Yes	No
Radio Design Labs	RU-MX5	Solid state	5	None	Yes	No
Radio Design Labs	ST-MLX3	Solid state	3	None	Yes	No
Radio Design Labs	ST-MMX3	Solid state	3	None	Yes	No
Radio Design Labs	ST-VCA1	Solid state	1	None	Yes	No
Radio Design Labs	STM-1	Solid state	1	None	No	No
Radio Design Labs	STM-2	Solid state	1	None	Yes	No
Radio Design Labs	STM-2X	Solid state	1	None	Yes	No
Radio Design Labs	STM-3	Solid state	1	None	Yes	No
Rane	DMS22	Solid state	2	3-band with sweepable parametric mid	Yes	No
Rane	MS1	Solid state	1	None	Yes	No
Rane	VP12	Solid state	2	2-band parametric	Yes	Yes
Studio Technologies	Mic-PreEminence	Solid state	2	None	Yes	No
Summit Audio	MPC-100A	Tube/solid-state hybrid	1 (stereo linkable with another MPC)	None	Yes	Yes
Summit Audio	TPA-200B	Tube	2	None	Yes	Yes
Symetrix	SX202	Solid state	2	None	Yes	No
Sytek	EQ4X-1M	Solid state	1	4-band parametric	Yes	Yes
Sytek	MPX-4A	Solid state	4	None	Yes	No
Sytek	MPX-4A 2	Solid state	4	None	Yes	No
Sytek	MPX-4D	Solid state	4	None	Yes	No
TC Electronic	1140 Parametric Equalizer (Mic Preamp)	Solid state	1	2-band parametric	Yes	1/4", XLR
TC Electronic	MP-1A	Solid state	N/A	+20 dB to +70 dB in 5 dB steps	No	2 independent channels for mics or instruments
The John Hardy Co.	Jensen Twin Servo	Solid state	1–4 (expandable)	None	No	No
The John Hardy Co.	M-1	Solid state	1–4 (expandable)	None	No	No
The John Hardy Co.	M-2	Solid state	1–4 (expandable)	None	No	No
TL Audio	PA5001	Tube	4	90 Hz low-cut filter	Yes	No
TL Audio	VP5050	Tube	1	Low-cut filter	Yes	Yes
TL Audio	VP5051	Tube	1	4-band	Yes	Yes
Whirlwind	MD-1	Solid state	1	None	Yes	Yes
Yamaha	HA8	Solid state	8	None	No	Yes
Yamaha	MLA7	Solid state	8	None	No	Yes

Fry Warning	Frequency Response	Noise	Total Harmonic Distortion	Special Features	Price
Clip LED	10 Hz–30 kHz	<-127.5 dB	0.001%–0.5%	Jensen input transformers; twin servo gain stage; mix bus assign for multiple mic/instrument stereo imaging; unique IDSS control for adjusting harmonic distortion; high-output headphone amplifier	M80 - $1,899.95 MP20 - $599.95
Clip LED	20 Hz - 40 kHz	< -127.5 dB	0.001%	Jensen twin servo input transformer; 8 smart compression preset curves specifically designed for voice, downward expander; de-esser; EQ frequency tailored for voice applications	$199.95
None	25 Hz–20 kHz	75 dB S/N	0.050%	Compatible with RDL rack-mounting accessories; switchable phantom power	$269
3-segment LED	70 Hz–30 kHz	70 dB S/N	0.030%	5-channel active line mixer/mic pre with switchable phantom power	$223
None	10 Hz–18 kHz	70 dB S/N	0.2%	Small size (about 0.5"x1.5"x3"); individual gain adjust; mic/line mix	$108
None	10 Hz–18 kHz	70 dB S/N	0.2%	Small size (about 0.5"x1.5"x3"); individual gain adjust	$113
None	20 Hz–22 kHz	80 dB S/N	0.05%	Voltage-variable attenuator/mic preamp; line or mic input/output; small size (about 0.5"x1.5"x3"); control via external potentiometer or 0–10 VDC	$102
None	50 Hz–30 kHz	70 dB S/N	0.05%	Small size (about 0.5"x1.5"x3"); switchable phantom power; fixed gain of 50 dB	$86
None	50 Hz–25 kHz	75 dB S/N	0.05%	Switchable phantom power; small size (about 0.5"x1.5"x3"); adjustable gain	$119
None	50 Hz–25 kHz	75 dB S/N	0.05%	Gating preamp via external control; switchable phantom power; small size (about 0.5"x1.5"x3")	$134
None	50 Hz–25 kHz	70 dB S/N	0.05%	Switchable phantom power; small size (about 0.5"x1.5"x3"); adjustable gain	$136
Clip LED	20 Hz–200 kHz	97 dB S/N	0.009%	Stereo with pan; phantom power	$549
Clip LED	20 Hz–20 kHz	102 dB S/N	0.007%	Phantom power; very clean	$199
6-segment LED, clip LED	20 Hz–20 kHz	97 dB S/N	0.01%	Mic pre with high-cut/low-cut filters; adjustable de-esser; adjustable compressor; phantom power; mic/line mix; line-level input	$599
5-segment LED	20 Hz–60 kHz	69.5 dB S/N; -129.5 dB EIN	0.002%	2 independent preamp channels; transformerless; electronically balanced input; phantom power; switchable on/off; balanced and unbalanced output connectors output phase-reverse switch; single rackspace	$799
Clip LED, VU meter	5 Hz–65 kHz	-84 dBu 108d B S/N	0.05%,	"Clean" to "saturated" valve sounds; stereo linkable with a second MPC-100A; Jensen mic transformer; +4 dBu and -10 dBV outputs	$2,400
Clip LEDs (input and output)	10 Hz–20 kHz	-84 dBu 108d B S/N	0.02%	Controllable sound (continuously variable from "clean" to "overdrive"); balanced output stage	$2,300
Clip LED	20 Hz–20 kHz	95 dB S/N; -128 dBm EIN	0.007%	Left and right mix output	$349
Peak LED	10 Hz–85 kHz	96 dBm S/N; -129 dBu EIN	0.0015%	Class A hybrid	$1,460
Peak LED	10 Hz–85 kHz	96 dBm S/N; -129 dBu EIN	0.0015%	Class A hybrid	$1,280
Peak LED	10 Hz–85 kHz	96 dBm S/N; -134 dBu EIN	0.0015%	Class A hybrid	$1,480
Peak LED	10 Hz–85 kHz	96 dBm S/N; -129 dBu EIN	0.0015%	Class A hybrid	$1,870
Overload LED	N/A	N/A	N/A		$760
N/A	N/A	N/A	N/A	48V Phantom Power 1/4", XLR mic inputs	$2,395
20-segment LED, clip LED	N/A	N/A	N/A	Two discrete op amps per channel; best Jensen input transformer (JT-16-B); no capacitors in signal path	$1,550– $4,250
20-segment LED, clip LED	N/A	N/A	N/A	990 discrete op amp; best Jensen input transformer (JT-16-B); no capacitors in signal path	$875– $2,905
20-segment LED, clip LED	N/A	N/A	N/A	990 discrete op amp; best Jensen input transformer (JT-16-B); no capacitors in signal path	$920– $3,085
Peak LED	20 Hz–40 kHz	-127 dBu EIN	0.05%	4 12AX7 tubes; 2 tube stages per channel	$699
Clip LED	20 Hz–40 kHz	-127 dBu EIN	0.05%	Mono tube mic pre and compressor	$449
Peak LED	20 Hz–40 kHz	-127 dBu EIN	0.05%	3 12AX7 tubes, voice processor	$699
None	6 Hz–25 kHz	-123 dB EIN	0.05%	Built-in headphone amp with volume control and minimixer to mix in a separate line input; battery operated with belt clip; selectable phantom power	$349
Peak LED	20 Hz–40 kHz	-128 dB EIN	0.05%	Phantom power; signal present LED; remote-control capable	$1,779
Peak LED	20 Hz–20 kHz	-128 dB EIN	0.1%	Phantom power	$599

MIXING CONSOLES

Manufacturer	Model	Mixer Configuration	Mic Inputs	Inserts/ Direct Outs	# Aux Sends	# Aux Returns	EQ	Mute
Alesis	Studio 12R	12x2	8	8/8	1 pre, 1 post	1 stereo	2-band shelving	No
Alesis	Studio 24	16x2x8x2	8	8/8	1 pre, 1 post	2 stereo	3-band w/sweepable midrange	Yes
Alesis	Studio 32	16x4x2	16	16/16	6 (2 mon, 4 post)	4 stereo	3-band w/parametric mid	Manual
Allen & Heath	GL3000	16x8x2/24x8x2 32x8x2/40x8x2	16, 24, 32, or 40	16/16, 24/24, 32/32, or 40/40	8 switchable	6	4-band, sweepable mids	Manual
Allen & Heath	GL3300	16x8x2x1/24x8x2x1/ 32x8x2x1/40x8x2x1	16, 24, 32, or 40	Inserts on all groups Direct outs on all channels	8/4 with XLR and inserts	2 stereo	4-band, switchable low-cut	4 groups
Allen & Heath	GL4000	24x8x2/32x8x2 40x8x2/48x8x2	24, 32, 40, or 48	24/24, 32/32, 40/40 or 48/48,	10 switchable	8	4-band, sweepable mids	MIDI, master mute
Allen & Heath	GS3000	24x8x2x1/32x6x2x1	24 or 32	24/24, 32/32	6 (2 automated)	6 (2 automated)	4-band, w/full parametric mids	2 automated master
Allen & Heath	Mix Wizard	16x2	16	16/16	6 switchable	2 stereo	4-band, sweepable mids	Manual
Allen & Heath	Mix Wizard 20	20x8x2	8	10/8 (also group tape outputs)	6 (2 cue, 2 post, 2 switchable)	8 stereo	4-band, sweepable mids	Channel on
Audio Centron	ACM 1406	16x2	6	6/6	1 pre/1 post	2 stereo	3-band	Yes
Behringer	Eurodesk MX 2442A	24x4x2	16	16/0	6	2 stereo	3-band w/ swept mids on mic channels/ 4-band fixed on stereo channels	Yes
Behringer	Eurodesk MX 3282A	32x8x2	24	24/0	8 (6 switchable)	4 stereo	3-band semiparametric	Manual
Behringer	Eurorack MX 1602A	16x2	4	0/0	2 (1 switchable)	1 stereo	2-band	No
Behringer	Eurorack MX 2804A	28x2x2	8	8/8	4 (2 switchable)	10 stereo	3-band	Manual
Behringer	Eurorack MX 802A	8x2	4	0/0	2	2 stereo	3-band w/low cut on mic channels	No
Carvin	SM162	16x2	8	1/1	2 post	2	3-band fixed	No
Crookwood	Mastering Bricks	1-256x2 to 1-256x8	Optional	1-256	None	None	Optional	Yes
DOD	1222	12x2	12	0/0	2 post; 1 pre	2 stereo	3-band	No
DOD	822	8x2	8	0/0	2 post; 1 pre	2 stereo	3-band	No
EAA	Micromix III	4x2	4	4/2	2 post	2	None	No
Mackie Designs	16•8	16x8x2	16	26/16	6 switchable	6 stereo	4-band, parametric high mid, sweepable low-mid	Manual
Mackie Designs	24•8	24x8x2	24	34/24	6 switchable	6 stereo	4-band, parametric high mid, sweepable low-mid	Manual
Mackie Designs	32•8	32x8x2	32	42/32	6 switchable	6 stereo	4-band parametric high mid, sweepable low-mid	Manual
Mackie Designs	40•8	40x8x3	40	53/40	8 switchable	8 stereo	4-band, sweeapable high mid, sweepable low-mid	Automated (100 snapshots, 10 groups of 10 banks)
Mackie Designs	56•8	56x8x3	56	69/56	8 switchable	8 stereo	4-band, sweepable high mid, sweepable low-mid	Automated (100 snapshots, 10 groups of 10 banks)
Mackie Designs	CR1604-VLZ	16x4x2	16	18/8	2 switchable, 4 post, 5/6 shift	4 stereo	3-band, sweepable mid	Manual

Solo-in-Place	Automation	Frequency Response	Signal-to-Noise Ratio	Total Harmonic Distortion	Channel Crosstalk (@1 kHz)	Phantom Power	Talkback/ Onboard Oscillator	Dedicated 2-Track Returns	Special Features	Dimensions	Price
No	No	20 Hz–50 kHz	90 dB	<0.0025%	105 dB	Global	No/no	Yes	3 rackspaces	19"x5.25"x4.25"	$449
No	No	20 Hz–50 kHz	90 dB	<0.0025%	>80 dB	Global	No/no	Yes	Rack-mountable	15"x17"x4.25"	$799
Yes	No	20 Hz–50 kHz	90 dB	<0.0025%	90 dB	Global	No/no	Yes	Control room switch matrix, EQ in/out	19"x6"x16.5" with rack ears	$1,299
No	No	20 Hz–30 kHz	101 dB	0.006%	100 dB	Per channel	No/no	Yes		31"–61"x25"x7"	$3,995–$8,495
Yes	No	20 Hz–30 kHz	101 dB	0.006%	100 dB	Yes	Yes/no	Yes		31"–61"x25"x7"	$3,995–$7,995
Yes	No	20 Hz–20 kHz	101 dB	0.006%	100 dB	Per channel	Yes/no	Yes		46"–77"x30"x8"	$8,995–$16,495
Yes/PFL	Yes	20 Hz–20 kHz	101 dB	0.005% @ 1 kHz	101 dB	Yes	Yes/no	Yes	2 valve mic/guitar preamp	46"–61"x25"x7"	$5,995–$6,995
No	No	20 Hz–50 kHz	101 dB	<0.008%	90 dB	Global	No/no	Yes (2)	100 Hz low-cut filter each channel	10 rackspaces	$1,195
No	No	20 Hz–50 kHz	101 dB	<0.008%	90 dB	Global	Yes/yes	Yes (2)	Full-featured 8-track recording console	10 rackspaces	$1,295
PFL/AFL selectable	No					Yes	No	No	60 mm faders, mute switches, solo		$549
Yes	Optional	20 Hz–40 kHz	103 dB	0.007%	95 dB	Yes	Yes/no	Yes	2 space external power supply	13.5"x26.5"x4"	$1,199.99
Yes	Optional	20 Hz–40 kHz	N/A	0.007%	95 dB	Global	Yes/no	Yes	Internal jumper for pre/post EQ on all auxes	40"x20"x6"	$1,899.99
Yes	No	20 Hz–40 kHz	101 dB	0.007%	95 dB	Global	No/no	Yes		1.5"x14.25"x12.75"	$369.99
Yes	No	20 Hz–40 kHz	101 dB	0.007%	95 dB	Global	No/no	Yes	Rack-mountable	2.4"x17.15"x14"	$699.99
No	No	20 Hz–40 kHz	93 dB	0.007%	95 dB	Yes	No/no	Yes		9"x 10"x3.125"	$279.99
No	No	20 Hz–20 kHz	90 dB	<0.01%	70 dB	Global	No/no	No		16"x12"x3"	$299
Yes	Yes	DC–500 kHz	>120 dB	<0.001%	>130 db	Optional	Optional	Yes	Pre-configured or built to order, routing consoles for stereo or surround mastering applications	19"x30"x15"	From $4,000
No	No	10 Hz–50 kHz	90 dB	<0.05%	65 dB	Global	No/no	Yes	Available in rack-mount or table-top versions	2.5"x17.8" (19" for RM)x12.25"	$599.95
No	No	10 Hz–50 kHz	90 dB	<0.05%	65 dB	Global	No/no	Yes	Available in rack-mount or table-top versions	2.5"x17.8" (19" for RM)x12.25"	$449.95
No	No	20 Hz–20 kHz	97 dB	<0.01%	60 dB	Channels 1 and 2	No/yes	Yes	Peak or VU meters, battery operated	10"x8"x2.5"	$4,885
Yes	UltraMix optional	10 Hz–120 kHz	97 dB	0.0015%	91 dB	Groups of 8 channels	Yes/no	Yes	Optional meter bridge	29.17"x28.74"x5.32"	$2,719
Yes	UltraMix optional	10 Hz–120 kHz	97 dB	<0.0015%	91 dB	Groups of 8 channels	Yes/no	Yes	Optional meter bridge	37.02"x28.74"x5.32"	$3,399
Yes	UltraMix optional	10 Hz–120 kHz	97 dB	0.0015%	91 dB	Groups of 8 channels	Yes/no	Yes	Optional meter bridge	45.82"x28.74"x5.32"	$4,249
Yes	UltraMute	10 Hz–100 kHz	90 dB	<0.005%	95 dB	Yes	Yes/yes	Yes	Meter bridge	65"x30.3"x11"	$9,995
Yes	UltraMute	10 Hz–100 kHz	90 dB	<0.005%	95 dB	Yes	Yes/yes	Yes	Meter bridge	82.15"x30.3"x11"	$13,595
Yes (switchable PFL/SIP)	UltraMix optional	20 Hz–100 kHz	90.5 dB	<0.005%	-84 dB	Global	No/no	Yes	Effects to monitors	19"x17.3"x5"	$1,199

MIXING CONSOLES

Manufacturer	Model	Mixer Configuration	Mic Inputs	Inserts/ Direct Outs	# Aux Sends	# Aux Returns	EQ	Mute
Mackie Designs	d•8•b	48x8	12 (expandable to 48)	2/24	12	6 stereo	4-band, fully parametric	Automated
Mackie Designs	LM-3204	32x2x2	2 (direct out)	10/2	4 post	4 stereo	3-band	Manual
Mackie Designs	MS1202-VLZ	12x2x2	4	4/0	1 switchable, 1 post	2 stereo	3-band	Manual
Mackie Designs	MS1402-VLZ	14x2x2	6	6/0	1 switchable, 1 post	2 stereo	3-band	Manual
Midiman	MIXIM 10	10x2	2	0/0	1	2	3-band	No
Midiman	Multimixer 10	10x2	0	0/0	0	No	No	No
Midiman	Micromixer 18	18x12	0	0/0	2	2 mono/1stereo	No	No
Midiman	Multimixer 6	6x2	0	0/0	0	No	No	No
Miles Technology	MTX-62	6x2	6	2	N/A	0	2-band	No
Millennia Media	Mixing Suite	Modular (3x2 to 80x4x4)	up to 80	0/80	4 stereo, switchable	4 stereo	Rumble filter (20-200 Hz adjustable)	Manual, master, Logic
Otari	STATUS	24,28,32,36,40,44,48 dual inputs. 12 track buses split to 24 discrete outputs	On all modules	On all modules	8	Return through Input module	4-band sweep	Yes
Panasonic	WR-C4512	12x4x2	8	11/11	11	6	3-band, sweepable mid	Manual
Panasonic	WR-C4520	20x4x2	16	19/19	19	6	3-band, sweepable mid	Manual
Panasonic	WR-DA7	32x8	16	16/16	6 pre/6 post	6 pre/6 post	4-band full parametric w/overlapping frequencies	Global and per channel
Panasonic	WR-S4412A	12x4x2	12	15/15	15	6	3-band, sweepable mid	Manual
Panasonic	WR-S4412S	12x4x2	8	11/11	11	6	3-band, sweepable mid	Manual
Panasonic	WR-S4416A	16x4x2	16	19/19	19	6	3-band, sweepable mid	Manual
Panasonic	WR-S4416S	16x4x2	12	15/15	15	6	3-band, sweepable mid	Manual
Panasonic	WR-S4424A	24x4x2	24	27/27	27	6	3-band, sweepable mid	Manual
Panasonic	WR-S4424S	24x4x2	16	23/23	23	6	3-band, sweepable mid	Manual
Peavey	RQ 1002-8	8x2	8	0/0	2	2 stereo	3-band	No
Peavey	RQ 2002-24	24x2	24	0/0	4	2 stereo	3-band	No
Peavey	RQ 3014	10x2	6	6/0	3	2 stereo	3-band, sweepable mid	Manual
Peavey	RQ 2002-16	16x2	16	0/0	4	2 stereo	3-band	No

Solo-in-Place	Automation	Frequency Response	Signal-to-Noise Ratio	Total Harmonic Distortion	Channel Crosstalk (@1 kHz)	Phantom Power	Talkback/ Onboard Oscillator	Dedicated 2-Track Returns	Special Features	Dimensions	Price
Yes	Full dynamic and snapshot	20 Hz–22 kHz	133.5 dB	<0.005%	90 dB	Yes	Yes/no	Yes	24-bit A/D converters; SVGA; QWERTY; mouse ports; compression, gating, EQ each channel; Apogee UV-22 processing; hard drive, floppy drive, modem (all standard on base model)	37.65"x27.5"x9.25"	$9,999 (base)
Yes	No	20 Hz–100 kHz	90.6 dB	<0.0022%	73 dB	Yes (mic pre's)	No/no	Yes	Mic pres	19"x9.66"x8.73"	$999
No	No	20 Hz–100 kHz	90.4 dB	<0.0025%	85 dB	Global	No/no	Yes	Effects to monitor/Alt 3/4 Bus	11.8"x11.2"x3.3"	$429
Yes (switchable PFL/SIP)	No	20 Hz–100 kHz	90.5 dB	<0.0025%	85 dB	Global	No/no	Yes	Effects to monitor/ Alt 3/4 Bus	14"x12.9"x3.5"	$599
No	No	5 Hz–100 kHz	100 dB	Better than 0.01%	85 dB	Yes	No	No	Desktop	7.3"x7.6"x1.3"	$249.95
No	No	5 Hz–100 kHz	100 dB	Better than 0.01%	85 dB	No	No	No	Desktop	7.1" x3.7"x1"	$119.95
No	No	5 Hz–100 kHz	>100 dB	Better than 0.01%	85 dB	No	No	No	1/2 rackspace	8.5"x6.5"x1.6"	$299.95
No	No	5 Hz–100 kHz	100 dB	Better than 0.01%	85 dB	No	No	No	N/A	6"x3.25"x1"	$99.95
No	No	20 Hz–20 kHz	94 dB	0.03%	70 dB	Per channel	No/no	No	Stackable; built-in 4th-order subwoofer crossover	19"x1.75"x10"	$569
Selectable "safe" or "destructive" Logic	Optional	2 Hz–400 kHz	103 dB	0.001% typical	100 dB	Per channel	Yes/yes	Yes (2)	Rack-mountable (4 spaces); balanced bussing; tiltable rack ears	4 rackspaces	$6,625 (6x2); $14,740 (20x2)
Yes. AFL, PFL, and In Place selectable for each path	Yes. Eagle Automation	10 Hz–20 kHz	Mic: 127dB; track busses: 86 dB	0.05%	>90 dB (1 kHz) between track busses	Switched locally on each module	Yes/yes	Yes	Dual Path Modules; order with or without patchbay; digitally controlled analog console.	Depends on console configuration	Depends on console configu-ration
No	No	20 Hz–20 kHz	>90 dB	<0.1%	70 dB	Per channel	No/no	Yes	4 stereo inputs on S-model;	30.2"x6.5"x21.5" 4x8 matrix on C-model	$3,195
No	No	20 Hz–20 kHz	>90 dB	<0.1%	70 dB	Per channel	No/no	Yes	4 stereo inputs on S-model; 4x8 matrix on C-model	38.3"x6.5"x21.5"	$3,995
Yes	Yes, optional Windows/Mac	20 Hz–20 kHz	114 dB	<0.1%	90 dB	Global and per channel	Yes/Yes	Yes	24-bit AD/DA converters; 200 scene memories; surround sound, moving faders; dynamics; 4 expansion slots	28"x22"x14" (w/meter bridge)	$4,995
No	No	20 Hz–20 kHz	90 dB	<0.1%	70 dB	Per channel	No/no	Yes	4 stereo inputs on S-model; 4x8 matrix on C-model	25.6"x6.5"x21.5"	$1,995
No	No	20 Hz–20 kHz	90 dB	<0.1%	70 dB	Per channel	No/no	Yes	4 stereo inputs on S-model; 4x8 matrix on C-model	25.6"x6.5"x21.5"	$2,295
No	No	20 Hz–20 kHz	90 dB	<0.1%	70 dB	Per channel	No/no	Yes	4 stereo inputs on S-model; 4x8 matrix on C-model	30.2"x6.5"x21.5"	$2,395
No	No	20 Hz–20 kHz	90 dB	<0.1%	70 dB	Per channel	No/no	Yes	4 stereo inputs on S-model; 4x8 matrix on C-model	30.2"x6.5"x21.5"	$2,695
No	No	20 Hz–20 kHz	90 dB	<0.1%	70 dB	Per channel	No/no	Yes	4 stereo inputs on S-model; 4x8 matrix on C-model	38.3"x6.5"x21.5"	$3,195
No	No	20 Hz–20 kHz	90 dB	<0.1%	70 dB	Per channel	No/no	Yes	4 stereo inputs on S-model; 4x8 matrix on C-model	38.3"x6.5"x21.5"	$3,495
No	No	20 Hz–20 kHz	83 dB	<0.01%	80 dB	Global	No/no	Yes		17.25"x16"x3"	$399.99
No	No	20 Hz–20 kHz	83 dB	<0.01%	80 dB	Global	No/no	Yes		37"x16"x3"	$899.99
No	No	20 Hz–20 kHz	90 dB	<0.01%	95 dB	Channels 1–6	No/no	Yes	Super channels	15.5"x12"x3.25"	$549.99
No	No	20 Hz–20 kHz	83 dB	<0.01%	80 dB	Global	No/no	Yes		28"x16"x3"	$699.99

MIXING CONSOLES

Manufacturer	Model	Mixer Configuration	Mic Inputs	Inserts/ Direct Outs	# Aux Sends	# Aux Returns	EQ	Mute
Peavey	SRC 4026	24x4x2	24	22/0	6 (2 switchable)	4 stereo	4-band	Manual
Peavey	SRC 4034	32x4x2	32	30/0	6 (2 switchable)	4 stereo	4-band	Manual
Peavey	SRC 6024	24x6x2	24	24/0	6	6 stereo	4-band, sweepable mids	Manual
Peavey	SRC 6032	32x6x2	32	32/0	6	6 stereo	4-band, sweepable mids	Manual
Peavey	Unity 300	8x2	4	4/0	2	2 stereo	2-band	No
Roland	RX-62	6x2x2	0	0/0	1 post	2	None	No
Roland	RX-82	8x2x2	0	0/0	2	2	2-band	No
Samson	MixPad12	12x2	6	0/0	2	2 stereo	2-band	No
Samson	MixPad4	4x2	2	0/0	1 pre	1 stereo	3-band	No
Samson	PL1602	16x2	2	0/0	2	2 stereo	2-band	No
Soundtech	QuantumMix CM802	8x2	4 plus 2 stereo	None	1	1 stereo	3-band	No
Soundtech	QuantumMix ST1202	12x2	4 plus 4 stereo	4	3	2 stereo	3-band, sweepable mid	Manual
Soundtech	QuantumMix ST1602	16x2	8 plus 4 stereo	8	3	2 stereo	3-band, sweepable mid	Manual
Speck	XTRAMIX cxi	40x8x2	0	Inserts on 8 bus and stereo outs	8 post	8 stereo	None	Yes
Spirit	FX8	16x4	8	10/8	1 pre, 1 post	2 stereo	3-band, sweepable mids	Yes
Spirit	Ghost	24x8x2/32x8x2	24 or 32	24/24; 32/32	10 switchable	4 stereo	4-band, 2 parametric mids	Manual, MIDI
Spirit	Spirit 8	16x8x2 (RW5224); 24x8x2 (RW5225); 32x8x2 (RW5226); 40x8x2 (RW5296);	16, 24, 32, or 40	16/16; 24/24, 32/32, 40/40	6 (2 pre, 2 switchable, 2 post)	0	4-band, sweepable mids	Manual
Spirit	Folio F1	12x2 (RW5444); 10x2 (RW5402)	8 or 6	8/0, 6/0	3 (1 pre, 2 switchable)	0	3-band, sweepable mids	Manual
Spirit	Folio Notepad	6x2	4	0/0	1 post	1	2-band on channels 1–4	No
Spirit	Folio SX	14x4	12	12/8	3 (1 pre, 2 switchable)	0	3-band, sweepable mids	Manual
Spirit	Live 3/2	8x2x1 (RW5294); 12x2x1 (RW5305); 16x2x1 (RW5195); 24x2x1 (RW5296)	8, 12, 16, or 24	8/0, 12/0, 16/0, 24/0	4 (1 pre, 2 switchable, 1 post)	0	4-band, sweepable mids	Manual
Spirit	Live 4/2	14x4x2 (RW5220) 18x4x2 (RW5221) 26x4x2 (RW5222) 34x4x2 (RW5223) 42x4x2 (RW5285)	12, 16, 24, 32, or 40	12/0, 16/0, 24/0, 32/0, 40/0	6 (3 pre, 1 switchable, 2 post)	0	4-band, sweepable mids	Manual
Spirit	LX7	16 channel RW5497 24 channel RW5484	16/24	16/24/8	6 (4 switchable, 2 post)	2	4-band, sweepable mids	Manual
Spirit	Powerstation	10x2	8	8/0	2 (1 pre, 1 post)	0	3-band, sweepable mid	No
Spirit	ProTracker	8x2	8	8/8	1 switchable	1	No	Manual
Studiomaster	42DC-XLR	4x2	4	0/0	0	0	0	No

Solo-in-Place	Automation	Frequency Response	Signal-to-Noise Ratio	Total Harmonic Distortion	Channel Crosstalk (@1 kHz)	Phantom Power	Talkback/ Onboard Oscillator	Dedicated 2-Track Returns	Special Features	Dimensions	Price
PFL	No	20 Hz–20 kHz	85 dB	<0.01%	90 dB	Global	Yes/no	Yes	Super channels	42"x30"x5"	$1,799.99
PFL	No	20 Hz–20 kHz	85 dB	<0.01%	90 dB	Global	Yes/no	Yes	Super channels	51"x30"x5"	$2,199.99
PFL	No	20 Hz–20 kHz	85 dB	<0.01%	90 dB	Groups of 8 channels	Yes/no	Yes	Super channels	42"x5"x25"	$2,499.99
No	No	20 Hz–20 kHz	85 dB	<0.01%	90 dB	Groups of 8 channels	Yes/no	Yes	Super channels	52"x25"x5"	$2,999.99
No	No	20 Hz–20 kHz	88 dB	<0.01%	60 dB	Global	No/no	Yes		12.5"x12"x3"	$299.99
No	No	20 Hz–50 kHz	N/A	0.05%	60 dB	None	No/no	No		14.25"x8.3"x0.3"	$295
No	No	20 Hz–50 kHz	N/A	0.5%	70 dB	None	No/no	No		14.2"x12"x4"	$395
No	No	10 Hz–50 kHz	N/A	0.01%	70 dB	Yes	No/no	No	Headphone jack; unit can be operated with gel-cell batteries	12.8"x9"x2.3"	$299.99
No	No	22 Hz–22 kHz	87 dB	0.004%	77 dB	Per channel	No/no	No	Battery powered (3x9V)/ on power supply	2.75"x6.5"x9"	$219.99
No	No	20 Hz–20 kHz	85 dB	0.05%	70 dB	Global	No/no	No	2 XLR ins	19"x9"x3.5"	$279.99
Yes	No	20 Hz–20 kHz	70 dB	<0.03%	75 dB	Global	No/no	No	Built-in echo effect	13.3"x9.9"x2.75"	$429.90
Yes	No	20 Hz–20 kHz	90 dB	<0.0025%	85 dB	Global	No/no	Yes	"B" mix, stereo submix assignable to main mix	2.75"x11.8"x13"	$749.90
Yes	No	20 Hz–20 kHz	90 dB	<0.0025%	85 dB	Global	No/no	Yes	"B" mix, stereo submix assignable to main mix	2.75"x16"x13"	$949.90
Yes	No	4 Hz–154 kHz	92 dB	0.0032%	78 dB	None	Yes/no	Yes (2)	Expandable; talkback; tuner out; control-room and headphone outs	4 rackspaces	$4,125
No, PFL	No	20 Hz–30 kHz	90 dB	<0.009%	96 dB	Global	No/no	Yes	HD rack spaces	17.4"x18.85"x2.8"	$699.95
Yes	MIDI	22 Hz–20 kHz	80 dB	<0.0028%	90 dB	Per channel	Yes/yes	Yes (2)	MIDI machine control	41.71"x30.74"x8.97" (24ch) 51.31"x30.74"x8.97" (32 ch)	$6,314 (24 ch), $7,491 (32 ch)
No	No	25 Hz–20 kHz	95 dB	<0.005%	92 dB	Per channel	Yes/no	Yes	Littlelite ready; built-in meter bridge	7"x35"x26" (RW5224) 7"x44"x26" (RW5225) 7"x53"x26" (RW5226) 7"x62.3"x26" (RW5296)	$4,299.95 $5,299.95 $6,399.95 $8,299.95
No	No	20 Hz–30 kHz	85 dB	<0.006%	96 dB	Global	No/no	Yes	Optional rack kit	2.8"x15.9"x20.4" (RW5444) 2.8"x13.7"x20.4" (RW5402)	$549.95 $649.95
No	No	20 Hz–20 kHz	84 dB	<0.005%	96 dB	Global	No/no	Yes	Optional mic-stand adapter; stereo inputs with RIAA preamps for turntables	2"x8.7"x8.9"	$299.95
No	No	20 Hz–30 kHz	85 dB	<0.006%	95 dB	Global	No/no	Yes	Optional rack kit	2.8"x18.9"x20.2"	$849.95
PFL	No	22 Hz–22 kHz	97 dB	<0.006%	80 dB	Per channel	Yes/no	Yes		3.44"x18.3"x23.64" (RW5294) 3.44"x22.9"x23.64" (RW5305) 3.44"x27.5"x23.64" (RW5195) 3.44"x36.8"x23.64" (RW5296)	$1,299.95 $1,899.95 $2,399.95 $3,399.95
No	No	22 Hz–22 kHz	97 dB	<0.006%	80 dB	Per channel	Yes/no	Yes		3.5"x27.4"x23.64" (RW5220); 3.5"x33.8"x23.64" (RW5221), 3.5"x44"x23.64" (RW5222), 3.5"x54.5"x23.64" (RW5223), 3.5"x64.64"x23.64" (RW5285)	$2,399.95 $3,199.95 $4,199.95 $5,399.95 $7,299.95
No	No	20 Hz–20 kHz	87 dB	<0.006%	95 dB	Global	Yes/no	Yes	Left, right, center mix	6.5"x26"x19.5" (RW5497) 6.5"x33.7"x19.5" (RW5484)	$1,899.95
No	No	22 Hz–22 kHz	80 dB	<0.009%	100 dB	Global	No/no	Yes	300W (x2) power amp, built-in Lexicon digital effects	17.4"x19"x6.8"	$1,599.95
No	No	20 Hz–20 kHz	95 dB	<0.003%	90 dB	Per channel	No/no	Yes	Built-in limiter, each channel acts as a direct box	5.3"x19.28"x8"	$1,199.95
No	No	20 Hz–20 kHz	81 dB	0.087%	85 dB	No	No/no	No			$129.95

MIXING CONSOLES

Manufacturer	Model	Mixer Configuration	Mic Inputs	Inserts/ Direct Outs	# Aux Sends	# Aux Returns	EQ	Mute
Studiomaster	Club 2000 102/142/182	8x2/12x2/16x2	6/10/14	2/0	2 switchable	1 stereo	3-band, sweepable mid	No
Studiomaster	Club DSP	8x2	6	2/0	2	1 stereo	3-band sweepable MID	No
Studiomaster	Mixdown Classic	24x8x2/32x8x2	24/32	34/24, 42/32	6 (4 post, 2 pre)	9 stereo or 18 mono	3-band with mid and bass sweep	MIDI
Studiomaster	PRO 2 163R/203	12x2x1/16x2x1	12/16	12/16	5 switchable	2 stereo	3-band, sweepable mid	Manual
Studiomaster	Rotary Club RC-12	8x2	4	2/0	2 switchable	1 stereo	3-band fixed	No
Studiomaster	Trilogy 166R/206R	12x4x2/16x4x2	12/16	14/10, 18/14	6 switchable	4 stereo	3-band, sweepable mid	Manual
Studiomaster	Trilogy TR326	24x4x2x1	24	24/20	6 switchable	4 stereo	3-band sweepable Mid	Manual
TASCAM	M-08	12x2	4	N/A	2 (1 pre, 1 post)	4	2-band	Yes
TASCAM	M-1600	16x8x2/24x8x2	8	16/24	5 switchable	4 stereo	3-band, sweepable mid	Manual
TASCAM	M-2600 mkII	16x8x2/24x8x2 32x8x2	All channels	All channels	6 switchable	6 stereo	4-band, sweepable mids	Manual
Yamaha	01V	24x6x2	12	0/16	6	2 stereo	4-band parametric, ch 1–16; 2 band parametric ch 17–24	Automated via on-board snapshots or via MIDI
Yamaha	02R, Version 2	40x8x2	16	8/16	8 switchable	2 stereo	4-band parametric	Automated
Yamaha	03D	26x4x2	8	2/16	4 switchable	2 stereo	4-band parametric	Automated

Solo-in-Place	Automation	Frequency Response	Signal-to-Noise Ratio	Total Harmonic Distortion	Channel Crosstalk (@1 kHz)	Phantom Power	Talkback/ Onboard Oscillator	Dedicated 2-Track Returns	Special Features	Dimensions	Price
No	No	20 Hz–50 kHz	84 dB	0.003%	81 dB	Global	No/no	Yes	102 and 142 rack-mountable	13.4"x12.5"x1.5" (102) 17.5"x12.5"x1.5" (142) 22.7"x12.5"x1.5" (182)	$439.95 $549.95 $669.95
No	No	20 Hz–50 kHz	86 dB	0.037%	81 dB	Global	No/no	Yes	Built in stereo DSP, rack mountable	17.5"x12.5"x1.5"	$695
No	MIDI	20 Hz–30 kHz	94 dB	<0.005%	93 dB	Per channel	Yes/yes	Yes	Optional meter bridge	47"x25.5"x3.5"	$2,995 (24 ch.) $3,595 (32 ch.)
Yes	No	20 Hz–20 kHz	89 dB	0.0085%	90 dB	Global	No/no	No	100 Hz highpass filters; 166R is rack-mountable	24.5"x21.5"x2.5"	$849 (163R) $1,049 (203)
No	No	20 Hz–50 kHz	84 dB	0.003%	81 dB	Global	No/no	Yes	Rack-mountable	13.6"x12.5"x1.5"	$359.95
Yes	No	20 Hz–20 kHz	89 dB	0.0085%	90 dB	Global	No/nc	Yes	100Hz highpass filters; 163R is rack-mountable	25.5"x21.5"x2.5"	$1,195 (166R) $1,395 (206)
Yes	No	20 Hz–20 kHz	89 dB	<0.0085%	90 dB	Global	No/No	Yes	100 Hz High Bass Filters	34"x21.125"x2.5"	$1,795
No	No	20 Hz–25 kHz	65 dB	0.03%	67 dB	Channels 1-4	No/no	Yes		6 rackspace x 5"	$349
Yes	Optional	20 Hz–25 kHz	76 dB	0.006%	90 dB	Channels 1-8	No/nc	Yes		28"x22.6"x7.1" 37"x22.6"x7.1"	$1,699 (16 ch.) $2,199 (24 ch.)
Yes	Optional	20 Hz–25 kHz	79 dB	0.006%	90 dB	Groups of 8 channels	Yes/no	Yes		32.3"x29.2"x7.4" 41.4"x29.2"x7.4" 50.5"x29.2"x7.4"	$3,199 (16 ch.) $3,999 (24 ch.) $4,699 (32 ch.)
Yes	99 onboard snapshots; dynamic automation via MIDI	20 Hz–20 kHz	110 dB	<0.1%	70 dB	Channels 1-12	No/yes	Yes	Total of 10 digital recording outputs and 10 digital inputs in ADAT, TDIF, AES formats; 22 limiter/compressor/gates; two 32-bit digital effects processors; MIDI remote control of outboard processors, recorders, and digital workstations	26"x28"x8"	$1,999, (optional 8-ch digital interface cards: $299)
Yes	Onboard, all mix functions/ time-code driven	20 Hz–20 kHz	110 dB	<0.2%	70 dB	Channels 1-8	Yes/yes	Yes	50 limiter/compressor/ gates; two 32-bit digital effects processors; time code-driven automation of all mix functions; MIDI remote control of outboard processors, recorders and digital workstations; surround-sound; touch sense-emulation fader automation; digital aux sends; 24-bit recording mode	26"x28"x8"	$8,899 (meter bridge: $1,299; digital interface cards: $299 and up)
Yes	Onboard, all mix functions/ time-code driven	20 Hz–20 kHz	110 dB	<0.1%	70 dB	Channels 1-8	No/yes	Yes	MIDI remote control of outboard processors, recorders, and digital audio workstations; 40 limiter/compressor/gates; two 32-bit digital effects processors; time code-driven automation of all mix functions; surround-sound; digital aux sends	18"x20"x8"	$3,699

MINIDISC AND CASSETTE MULTITRACKS

Manufacturer	Model	Format	# of Tracks/ Simultaneously	Mixer Configuration	Channel Inputs	# of Mic Trims	EQ (type)	# of Aux Sends /Aux Returns	# Direct Outs/ Inserts
Fostex	X-55	Cassette	4/2	4x2	1/4" (4); XLR (2)	2	High and low shelving	2/2 (stereo)	4/2
Fostex	X-77	Cassette	4/2	6x2	1/4" (6); XLR (2)	2	3-band parametric	2/2 (stereo)	4/2
Fostex	XR-3	Cassette	4/2	4x2	1/4" (2)	2	N/A	N/A	N/A
Sony	MDM-X4 MKII	MiniDisc	4/4	10x4	1/4" (2); XLR (2)	4	3-band fixed	2/2	4/0
TASCAM	414 Portastudio	Cassette	4/4	4x2	1/4" (8)	4	High and low shelving	2/2	N/A
TASCAM	424 MKII Portastudio	Cassette	4/4	8x2	1/4" (4); XLR (4)	4	3-band with mid-sweep	2/2	N/A
TASCAM	488 MKII Portastudio	Cassette	4/4	12x4	1/4" (8); XLR (2)	4	3-band with mid-sweep	2/2	N/A
TASCAM	564 Digital Portastudio	MiniDisc	4/4	12x2	1/4" (4); XLR (4)	4	3-band with mid-sweep	2/2	4/2
TASCAM	Porta 02	Cassette	4/2	2x2	1/4" (2)	2	N/A	N/A	N/A
Yamaha	MD4	MiniDisc	4/4	8x4	1/4" (4)	4	3-band parametric	1/2	4/0
Yamaha	MT4X	Cassette	4/4	4x2	1/4" (5)	4	3-band parametric	2/4	4/0
Yamaha	MT50	Cassette	4/4	4x2	1/4" (5)	4	High and low shelving	1/2	4/0

MODULAR DIGITAL MULTITRACKS

Manufacturer	Model	Tape Format	ADC	DAC	Sampling Rate	Frequency Response	Dynamic Range	Signal-to-Noise Ratio	Crossfade Times
Alesis	XT20 20-bit Digital Audio Recorder	S-VHS	20-bit, 128x oversampling	24-bit, 128x oversampling	44.1 kHz/48 kHz	20 Hz–20 kHz (±0.5 dB)	102 dB	N/A	11 ms, 21 ms, 32 ms, 43 ms
Alesis	LX20 20-Bit Digital Audio Recorder	S-VHS	18-bit, 128x oversampling	20-bit, 8x oversampling	44.1 kHz/48 kHz selectable	20 Hz–20 kHz (±0.5 dB)	97 dB	N/A	11 ms, 21 ms, 32 ms, 43 ms
Alesis	M20 Professional 20-Bit Digital Audio Recorder	S-VHS	24-bit, 64x oversampling	24-bit, 128x oversampling	44.1 kHz/48 kHz	20 Hz–20 kHz (±0.5 dB)	102 dB (DAC)/ - 115 dB (ADC)	N/A	5.4 ms–1.365 sec
Sony	PCM-800	Hi 8	16-bit	16-bit	44.1 kHz/48 kHz	20 Hz–20 kHz (±0.5 dB)	>92 dB	N/A	10 ms–90 ms
TASCAM	DA-38	Hi 8	18-bit, 64x oversampling	20-bit, 8x oversampling	44.1 kHz/48 kHz	20 Hz–20 kHz (±0.5 dB)	>92 dB	>92 dB	10 ms–90 ms (in 10 ms steps)
TASCAM	DA-88	Hi 8	16-bit, 64x oversampling	18-bit, 8x oversampling	44.1 kHz/48 kHz	20 Hz–20 kHz (±0.5 dB)	>92 dB	>92 dB	10 ms–90 ms (in 10 ms steps)

# Locate Points	Tape Speed	Pitch Control Range	Noise Reduction (type)	Frequency Response	Signal-to-Noise Ratio	Total Harmonic Distortion	Price
N/A	3 3/4 ips	±10%	Dolby S	Mixer: 20 Hz–20 kHz Recorder: 40 Hz–14 kHz	58 dB	2%	$479
N/A	3 3/4 ips	±12%	Dolby C	Mixer: 20 Hz–20 kHz Recorder: 40 Hz–18 kHz	65 dB	2%	$589
N/A	3 3/4 ips	±10%	Dolby B	Mixer: 20 Hz–20 kHz Recorder: 40 Hz–18 kHz	58 dB	2%	$349
11	N/A	±8%	None	5 Hz–20 kHz	>94 dB	N/A	$895
-	3 3/4 ips	±12%	dbx Type II	40 Hz–16 kHz	85 dB	1% (@1 kHz)	$449
2 plus RTZ	3 3/4 ips	±12%	dbx Type II	40 Hz–16 kHz	95 dB w/dbx	1% (@1 kHz)	$599
2 plus RTZ	3 3/4 ips	±12%	dbx Type II	20 Hz–22 kHz	95 dB w/dbx	1.3% (@400 Hz)	$1,499
20	N/A	±9.9%	None	20 Hz–20 kHz	>88 dB	<0.008%	$1,499
N/A	1 7/8 ips	N/A	N/A	40 Hz–12.5 kHz	60 dB	1.5% (@1 kHz)	$199
10	N/A	±6%	None	20 Hz–20 kHz	85 dB	0.01% (@1 kHz)	$1,999
3	1 7/8 ips; 3 3/4 ips	±10%	dbx	Mixer: 20 Hz–20 kHz Recorder: 40 Hz–18 kHz	85 dB w/dbx	2% (@400 Hz)	$599
-	3 3/4 ips	±10%	dbx	Mixer: 20 Hz–20 kHz Recorder: 40 Hz–16 kHz	85 dB w/dbx	1.5% (@400 Hz)	$479

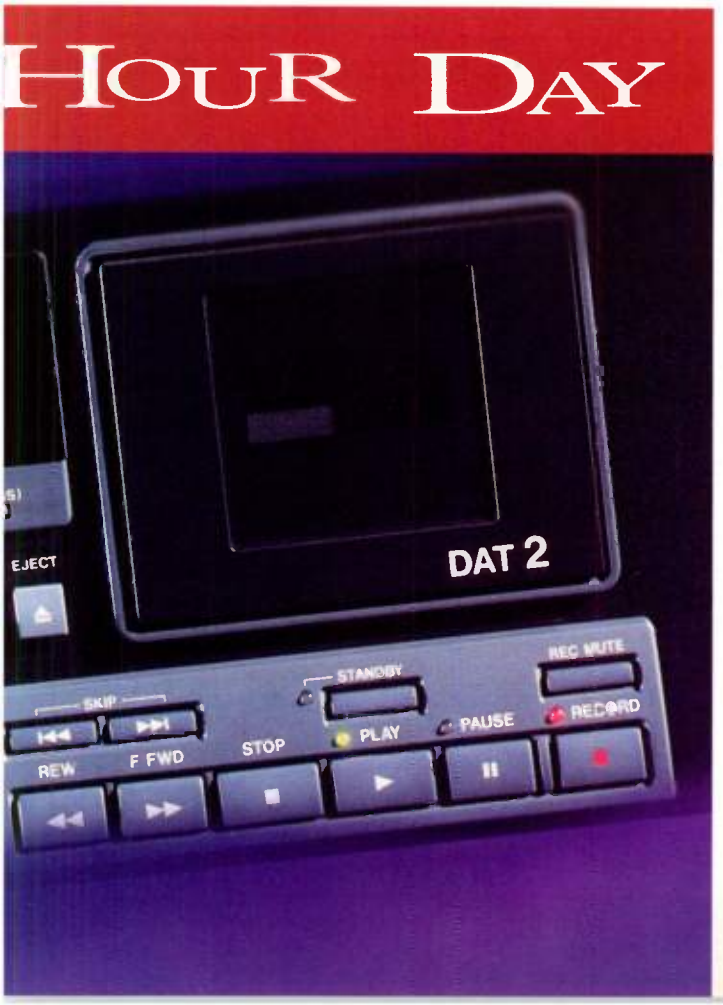
# of Locate Points	Total Harmonic Distortion	Channel Crosstalk	Analog I/O	Digital I/O	Onboard Sync	Jog/Shuttle Control	Special Features	Options	Price
10	<.005	<-90 dB	+4 dBu on Elco (8/8), unbalanced RCA -10	Alesis 8-channel optical digital interface	ADAT synchronization interface	No	Auto-punch, rehearse mode, loop, track copy	BRC master remote control & synchronizer. ADAT PCR Personal Computer Recording System	$2,995
5 onboard location points	>.009	OK	Unbalanced RCA -10	Alesis 8-channel optical digital interface	ADAT synchronization interface	No	Auto-punch, rehearse mode, loop	BRC master remote control, ADAT PCR Personal Computer Recording System	$2,995
99	>.003	<90 dB	Balanced +4 dBu on Elco (8/8), +4 dBu on XLR	Alesis 8-channel optical digital interface	ADAT synchronization interface, SMPTE/EBU synch	Yes, both	Auto-punch, rehearse mode, loop, track copy, TC track, Aux track	CADI Controller Autolocator, Desktop Interface RMD Digital Remote Meter Display	$6,995
2	<0.007%	<-90dB	Balanced XLR +4 dBu (8/8)	8 AES/EBU	Supports MIDI sync, MMC, SMPTE, RS422 9-pin video sync, external word clock	Yes		RMD-800 multi-channel reverb, Pack 80 sync card	$5,995
2 plus RTZ	<0.008%	<-90dB	Balanced +4 dBm on 25-pin D-sub (8/8); unbalanced RCA -10 dBu (8/8)	TDIF on D-sub (2)	N/A	Yes	Electronic patch bay, digital track copy	MMC-38 MIDI interface; AES/EBU or S/PDIF w/optional interface	$3,499
2 plus RTZ	0.007%	<-90dB	Balanced +4 dBm on 25-pin D-sub (8/8); unbalanced RCA -10 dBu (8/8)	TDIF	Yes (see options)	Yes	1 hour, 48 minutes of record/playback time with standard 120 tape	RC-848 controllers, 54-88 sync card, IF series digital interfaces; AES/EBU or S/PDIF w/optional interface	$4,799

MODULAR HARD-DISK RECORDERS

Company	Model	# of Tracks	# of Virtual Tracks	Levels of Undo	# of Locate Points	Analog Inputs	Analog Outputs	Digital I/O	Back-up Options	Jog/Shuttle Control
Akai	DR16	16	5 takes (takes can be multiple tracks)	?	100	1/4" (8) Balanced	1/4" (16) Balanced	2-channel AES/EBU and S/PDIF options: 8-channel ADAT, 16-channel ADAT, 8-channel AES/EBU, 8-channel TDIF	DAT, ADAT optical, TDIF, SCSI DAT, Exabyte, SCSI disk copy to removable media	Yes
Akai	DR8	8	5 takes (takes can be multiple tracks)	?	100	1/4" (8) balanced	1/4" (12) balanced	2-channel AES/EBU and S/PDIF, options: 8-channel ADAT, 8-channel AES/EBU, 8-channel TDIF	DAT, ADAT optical, TDIF, SCSI DAT, Exabyte, SCSI disk copy to removable media	Yes
E-mu Systems	Darwin	8	800 (100 versions)	16	40	1/4" (4)	1/4" (8)	S/PDIF in/out standard, ADAT optical option	Jaz, SyJet, SCSI DAT, ADAT optical, QIC/SCSI, plus copy project to other SCSI device	Yes
Fostex	D160	16	8	1	6	RCA (8)	RCA (16)	S/PDIF	ADAT (x2), DAT, SCSI	Yes
Fostex	D90	8	0	1	6	RCA (8)	RCA (8)	S/PDIF	ADAT, DAT, SCSI (optional)	Yes
Fostex	DMT 8VL	8	2	1	6	RCA (8)	RCA (8)	S/PDIF	DAT or SCSI (optional)	Yes
Korg	D8	8	400	1	3	1/4" TRS (2), RCA (1)	RCA (4), 1/4" (1) Headphone jack	S/PDIF optical input & output	DAT, SCSI	Yes
Otari	RADAR II	24	24x99	99	100	8 channel balanced 25-pin D sub connectors (3)	8 channel balanced 25-pin D sub connectors (3)	24 channels TDIF	SCSI, Exabyte, TDIF	Yes
Vestax	HDR-V8	8	8	"One" or "All"	10	1/4" (8), XLR (1)	1/4" (10)	S/PDIF	DAT, SyQuest, SyJet IDE-type cartridges, ADAT (optional), TDIF (optional)	Yes

INTRODUCING THE 48

Channel EQ	Synchronization	Time-Code Rates	Number of Expansion Ports	ADC	DAC	Sample Rates	SCSI	Maximum Addressable HD Size	Options	Price
Selectable 3-band parametric or high-shelf/low-shelf with parametric midband	MIDI Clock with SPP, MTC, SMPTE	24, 25, 29.97, 29.97d, 30, 30d	6	18-bit, 64x oversampling	18-bit, 8x oversampling	32, 44.1, 44.056, 48 kHz	Yes	2.048 GB	Internal HD (2GB); IB801S SCSI-B; IB802T SMPTE; IB803M MIDI; IB805R RS422; IB806B biphase; SuperView VGA/keyboard; MT8 mixer remote; DL16 full-function remote	$2,995 (DR16); $3,395 (DR16HD)
Selectable 3-band parametric or high-shelf/low-shelf with parametric midband	MIDI Clock with SPP, MTC, SMPTE, Biphase	24, 25, 29.97, 29.97d, 30, 30d	6	18-bit, 64x oversampling	20-bit, 8x oversampling	32, 44.1, 44.056, 48 kHz	Yes	2.048 GB	Internal HD (2GB); IB801S SCSI-B; IB802T SMPTE; IB803M MIDI; IB805R RS422; IB806B biphase; SuperView VGA/keyboard; MT8 mixer remote; DL16 full-function remote	$1,995 (DR8); $2,395 (DR8HD)
N/A	MTC, ADAT 9-pin sync, SMPTE	24, 25, 29.97, 29.97d, 30, 30d	6	18-bit, 128x oversampling	18-bit, 64x oversampling	44.1, 48 kHz	Yes	2 GB	4-input expander, ADAT optical card, ADAT 9-pin card, SMPTE sync card, DSP card, Jaz drive with front-panel mounting, QIC tape-backup drive with front-panel mounting	$1,995 (w/2 GB fixed hard drive)
N/A	MTC and SMPTE (optional)	24, 25, 29, 29d, 30, 30d	2	18-bit, 64x oversampling	20-bit, 128x oversampling	44.1, 48 kHz	Yes	2.55 GB	Balanced I/O, time code	$3,995 (Basic)
N/A	MTC	N/A	2	18-bit, 64x oversampling	20-bit, 128x oversampling	44.1, 48 kHz	Optional	2.55 GB	Balanced I/O	$2,595
2-band shelving	MTC	N/A	1	18-bit, 64x oversampling	20-bit, 128x oversampling	44.1 kHz	Optional	2.55 GB	8051 Font SMS-Cop-1 digital ouinverter, easy expansion	$1,395
High/low Shelving (10kHz, 100 Hz)	MID Clock, MTC, MMC	30	0	18-bit	18-bit	44.1kHz	Yes	4 GB max	N/A	$1,250
N/A	LTC, VITC, word clock	All frame rates	N/A	24-bit, 64x oversampling	24-bit, 64x oversampling	32, 44.056, 44.1, 47.952, 48 kHz	Yes	9 GB	UFC-24 24-channel Digital Format Converter	$24,950
3-band with high-shelf, low-shelf, parametric midband	MIDI Clock, MTC, SMPTE (option)	24, 25, 29.97, 30, 30d	3	18-bit, 128x oversampling	20-bit, 128x oversampling	44.1 kHz	No	4 GB (x2)	Automated mixing software (PC & Mac)	$2,495



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POWER AMPS

Manufacturer	Model	Continuous Avg. Power Into 8Ω (20 Hz–20 kHz ± 1 dB)	Continuous Avg. Power Into 4Ω (20 Hz–20 kHz ± 1 dB)	Frequency Response	Signal-to-Noise	Total Harmonic Distortion	Damping Factor	Slew Rate
Alesis	RA-100	75W per channel	100W per channel	20 Hz–20 kHz	>100 dB	<0.05% @ 1 kHz	200 (ref. 8Ω)	20 V/ms
Audio Centron	MP600	130W per channel	210W per channel	20 Hz–20 kHz	>100 dB	<0.25%	250	30 V/µs
Audio Centron	RMA800	125W per channel	200W per channel	20 Hz–20 kHz	>100 dB	<0.25%	250	30 V/µs
Audio Centron	MP1200	260W per channel	425W per channel	20 Hz–20 kHz	>100 dB	<0.25%	250	30 V/µs
Audio Centron	RMA1601	250W per channel	425W per channel	20 Hz–20 kHz	>100 dB	<0.15%	250	40 V/µs
Audio Centron	RMA1650	250W per channel	425W per channel	20 Hz–20 kHz	>100 dB	<0.15%		40 V/µs
BGW Systems	Millennium Series 1	100W per channel	150W per channel	20 Hz–150 kHz or 40 Hz–150 kHz (selectable)	>100 dB	<0.1%	>200 (ref. 8Ω)	>40 V/µs
BGW Systems	Millennium Series 2	200W per channel	300W per channel	20 Hz–150 kHz or 40 Hz–150 kHz (selectable)	>100 dB	<0.1%	>200 (ref. 8Ω)	>40 V/µs
BGW Systems	Millennium Series 3	300W per channel	450W per channel	20 Hz–150 kHz or 40 Hz–150 kHz (selectable)	>100 dB	<0.1%	>200 (ref. 8Ω)	>40 V/µs
BGW Systems	Performance Series 1	110W per channel	165W per channel	8 Hz–175 kHz	>100 dB	<0.1%	>200 (ref. 8Ω)	>40 V/µs
BGW Systems	Performance Series 2	220W per channel	330W per channel	8 Hz–175 kHz	>100 dB	<0.1%	>200 (ref. 8Ω)	>40 V/µs
BGW Systems	Performance Series 3	330W per channel	500W per channel	8 Hz–175 kHz	>100 dB	<0.1%	>200 (ref. 8Ω)	>40 V/µs
BGW Systems	Performance Series 4	440W per channel	660W per channel	8 Hz–175 kHz	>100 dB	<0.1%	>200 (ref. 8Ω)	>40 V/µs
Bryston	2-B-LP-PRO	70W per channel	120W per channel	0.5 Hz–100 kHz	>100 dB	<0.01%	>500 @ 20 Hz (ref. 8Ω)	>60 V/µs
Bryston	3B-ST Pro	150W per channel	250W per channel	<1 Hz–100 kHz	>106 dB	<0.007%	>500 @ 20 Hz (ref. 8Ω)	>60 V/µs
Bryston	4B-ST Pro	300W per channel	500W per channel	<1 Hz–100 kHz	>106 dB	<0.007%	>500 @ 20 Hz (ref. 8Ω)	>60 V/µs
Bryston	7B-ST Pro Mono Block	600W per channel	900W per channel	<1 Hz–100 kHz	>106 dB	<0.007%	>300 @ 20 Hz (ref. 8Ω)	>60 V/µs
Bryston	8B-ST Pro 4-channel	150W per channel	250W per channel	<1 Hz–100 kHz	>106 dB	<0.007%	>500 @ 20 Hz (ref. 8Ω)	>60 V/µs
Bryston	Power Pac 120 Mono Amp	150W per channel	250W per channel	<1 Hz–>1 kHz	>106 dB	<0.007%	>500 @ 20 Hz (ref. 8Ω)	>60 V/µs
Carver Professional	ca400	130W per channel	200W per channel	20 Hz–20 kHz	>100 dB	<0.1%	>200	10 V/µs
Carver Professional	ca900	325W per channel	450W per channel	20 Hz–20 kHz	>100 dB	<0.1%	>200	40 V/µs (bandwidth limited)
Carver Professional	pm125	50W per channel	62W per channel	20 Hz–20 kHz	>100 dB	<0.1%	<400	10 V/µs
Carver Professional	pm420	135W per channel	210W per channel	20 Hz–20 kHz	>100 dB	<0.1%	<400	10 V/µs
Carver Professional	pm700	225W per channel	350W per channel	20 Hz–20 kHz	>100 dB	<0.1%	<400	40 V/µs (bandwidth limited)

Power Consumption	Protection Features	AC Circuit Breaker	Ground Lift	Indicator Lights	Dimensions (inches)	Weight (lbs.)	Price
500W (max)	Short circuit; thermal overload; DC offset; RF; open circuit; soft clipping; on/off transient; reactive	No	No	Clip	19x3.5x8	14.25	$349
5 amps (115 VAC)	Short circuit; RF; overtemp; DC offset; turn on/off transient	6A fuse	No	Signal, limit, protect	19x5.25x12.5	25	$529
10 amps (120 VAC)	Short circuit; RF; turn on/off transient; thermal; DC offset; auto clip	External fuse	No	Signal, limit, fault	19x3.5x15	27	$599
9 amps (115 VAC)	Short circuit; RF; overtemp; DC offset; turn on/off transient	10A fuse	No	Signal, limit, protect	19x5.25x12.5	33	$649
N/A	Short circuit; RF burnout; speaker out relays; turn on/off transient; thermal DC protection;	External fuse	No	N/A	19x 3.5x 16.75	36	$699
N/A	Short circuit; RF burnout; speaker out relays; turn on/off transient; thermal DC protection;	Yes	No	N/A	19x3.5x16.75	36	$799
350W	Short circuit; thermal overload; DC offset; RF; open circuit; DC speaker protection; delay turn-on; instantaneous shut-off	None	Yes (internal)	Clip, power, signal present	19x5.25x12.8	28	$699 ($857 with trans-formers)
480W	Short circuit; thermal overload; DC offset; RF; open circuit; DC speaker protection; delay turn-on; instantaneous shut-off	None	Yes (internal)	Clip, power, signal present	19x5.25x12.8	34	$899 ($1,057 with auto-formers)
675W	Short circuit; thermal overload; DC offset; RF; open circuit; DC speaker protection; delay turn-on; instantaneous shut-off	None	Yes (internal)	Clip, power, signal present	19x5.25x15.4	40	$1,259 ($1,417 w/auto-formers)
350W	Short circuit; thermal overload; DC offset; RF; open circuit; DC speaker protection; delay turn-on; instantaneous shut-off	None	Yes (internal)	Clip, power, signal present	19x3.5x12.6	26	$849
480W	Short circuit; thermal overload; DC offset; RF; open circuit; DC speaker protection; delay turn-on; instantaneous shut-off	None	Yes (internal)	Clip, power, signal present	19x3.5x12.6	32	$999
675W	Short circuit; thermal overload; DC offset; RF; open circuit; DC speaker protection; delay turn-on; instantaneous shut-off	None	Yes (internal)	Clip, power, signal present	19x3.5x13.6	37	$1,399
1,100W	Short circuit; thermal overload; DC offset; RF; open circuit; DC speaker protection; delay turn-on; instantaneous shut-off	None	Yes (internal)	Clip, power, signal present	19x3.5x17.1	54	$1,999
15–250W	Short circuit; RF; thermal; DC offset	No	Yes	Tricolor LED	19x1.75x10	18	$850
30–500W	Short circuit; RF; thermal; DC offset	No	Yes	Tricolor LED	19x5.25x9	22	$1,565
50–1,000W	Short circuit; RF; thermal; DC offset	No	Yes	Tricolor LED	19x5.25x15.5	42	$2,265
50–1,000W	Short circuit; RF; thermal; DC offset	No	Yes	Tricolor LED	19x5.25x15.5	42	$2,397.50
50–1,000W	Short circuit; RF; thermal; DC offset	No	Yes	Tricolor LED	19x5.25x15.5	44	$2,995
15–250W	Short circuit; RF; thermal overload; DC offset	No	Yes	Tricolor LED	12x3.6x7.25	10	$750
1,000W	DC offset; over temperature; short circuit; clipping eliminator; resettable circuit breaker	10A circuit breaker	No	Power ready, signal, clip/protect	19x3.5x13.25	22.8	$769
725W	DC offset; over temperature; short circuit; clipping eliminator; AC line fuse	12A fuse	No	Power ready, signal, clip/protect	19x3.5x13.25	34	$1,199
250W	DC offset; over temperature; short circuit; clipping eliminator;	2A circuit breaker	No	Power ready, signal, clip/protect	19x1.75x13.25	13.8	$619
1,000W	DC offset; over temperature; short circuit; clipping eliminator resettable circuit breaker	10A circuit breaker	No	Power ready, signal, clip/protect	19x3.5x13.25	23.8	$799
500W	DC offset; over temperature, short circuit; clipping eliminator; AC line fuse	10A fuse	No	Power connected/standby indicator and 7-LED display per channel (including power ready and clip/protect)	19x3.5x13.25	30	$1,069

POWER AMPS

Manufacturer	Model	Continuous Avg. Power Into 8Ω (20 Hz–20 kHz ± 1 dB)	Continuous Avg. Power Into 4Ω (20 Hz–20 kHz ± 1 dB)	Frequency Response	Signal-to-Noise	Total Harmonic Distortion	Damping Factor	Slew Rate
Carver Professional	pm950	325W per channel	475W per channel	20 Hz–20 kHz	>100 dB	<0.1%	<400	40 V/µs (bandwidth limited)
Carver Professional	pm1400	475W per channel	700W per channel	20 Hz–20 kHz	>100 dB	<0.1%	<400	40 V/µs
Carver Professional	pt250	465W per channel	625W per channel	20 Hz–20 kHz	>105 dB	<0.5%	<400	25 V/µs
Carver Professional	pt1800	600W per channel	900W per channel	20 Hz–20 kHz	>100 dB	<0.5%	<400 @ 1 kHz	25 V/µs
Carver Professional	pt2400	750W per channel	1,200W per channel	20 Hz–20 kHz	>100 dB	<0.5%	<400 @ 1 kHz	25 V/µs
Carver Professional	PX1450	375W per channel	725W per channel	20 Hz–20 kHz	>106 dB	<0.1%	<600 @ 10–400 Hz (ref. 8Ω)	70 V/µs
Carver Professional	PX850	260W per channel	425W per channel	20 Hz–20 kHz	>106 dB	<0.1%	>600 @ 10–400 Hz (ref. 8Ω)	70 V/µs
Carvin	DCM1500	300W per channel	500W per channel	20 Hz–20 kHz	107 dB	0.03%	>450	>50 V/µs
Carvin	DCM2000	450W per channel	700W per channel	20 Hz–20 kHz	109 dB	0.03%	>500	>5 V/µs
Carvin	HT1000	225W per channel	350W per channel	20 Hz–20 kHz	106 dB	0.03%	>400	>45 V/µs
Carvin	HT150	50W per channel	75W per channel	20 Hz–20 kHz	100 dB	0.1%	>300	>30 V/µs
Carvin	HT400	100W per channel	150W per channel	20 Hz–20 kHz	100 dB	0.03%	>350	>45 V/µs
Carvin	HT750	175W per channel	250W per channel	20 Hz–20 kHz	103 dB	0.03%	>350	>45 V/µs
Chord	SPA 1032	280W per channel	400W per channel	0.2 Hz–39 kHz	>105 dB	<-75 dB	N/A	70 V/µs
Chord	SPA 2464 8-ch.	280W per channel	350W per channel	0.2 Hz–39 kHz	>105 dB	<-75 dB	N/A	70 V/µs
Crest Audio	V 450 Vs 450	150W per channel	225W per channel	10 Hz–20 kHz	105 dB	1%	>700	12 V/µs
Crest Audio	V 650 Vs 650	200W per channel	325W per channel	10 Hz–20 kHz	105 dB	1%	>800	12 V/µs
Crest Audio	V 900 Vs 900	250W per channel	450W per channel	10 Hz–20 kHz	105 dB	1%	>1,000	12 V/µs
Crest Audio	V 1100 Vs 1100	300W per channel	550W per channel	10 Hz–20 kHz	105 dB	1%	>1,000	12 V/µs
Crest Audio	V 1500 Vs 1500	400W per channel	750W per channel	10 Hz–20 kHz	105 dB	1%	>1,000	12 V/µs
Fender	SPL-6000	150W per channel	300W per channel	5 Hz–68 kHz	106 dB	<0.03% @ 4Ω	>30 (5 Hz–20 kHz); >175 (1 kHz)	>13 V/µs
Fender	SPL-9000	250W per channel	450W per channel	22 Hz–25 kHz	101 dB	<0.03% @ 4Ω	>50 (5 Hz–20 kHz); >240 (1 kHz)	25 V/µs
Furman	SP-20A Half Rack Stereo Power Amp	20W per channel	20W per channel	20 Hz–20 kHz	99 dB	0.05%	N/A	N/A
Groove Tubes	D7SSL Limited Edition	Depends on output tubes (45 to 65 watts per channel)		Depends on output tubes	95 dB below rated output power	N/A	N/A	N/A
Hafler	9505	250W per channel	375W per channel	0.15 Hz–300 kHz	100 dB	<0.07%	1,000 (to 1 kHz); 100 (to 10 kHz); 20 (to 100 kHz)	150 V/µs

Power Consumption	Protection Features	AC Circuit Breaker	Ground Lift	Indicator Lights	Dimensions (inches)	Weight (lbs.)	Price
725W	DC offset; over temperature; short circuit; clipping eliminator; AC line fuse	12A fuse	No	Power connected/standby indicator and 7-LED display per channel (including power ready and clip/protect)	19x3.5x13.25	34	$1,269
800W	DC offset; over temperature; short circuit; clipping eliminator; AC line fuse	15A fuse	No	Power connected/standby indicator and 7-LED display per channel (including power ready and clip/protect)	19x3.5x13.25	34.2	$1,539
1,200W (max)	Short circuit; excessive high frequency; thermal; clipping eliminator; DC offset; soft start/input mute	10A fuse	Yes	Power ready, signal, clip/protect	19x3.5x10.75	11	$1,879
8 amps	Short circuit; excessive high frequency; thermal; clipping eliminator; DC offset; soft start/input mute	Two 10A fuses	Yes	Power ready, signal, clip/protect	19x5.25x12.75	46	$2,379
11 amps	Short circuit; excessive high frequency; thermal; clipping eliminator; DC offset; soft start/input mute	Two 12A fuses	Yes	Power ready, signal, clip/protect	19x5.25x12.75	48	$2,779
750W	Thermal; short circuit	15A	No	Power ready, signal present, clip, protect, thermal and standby indicators for each channel	19x5.75x15.38	58.2	$1,245
840W	Thermal; short circuit	15A fuse	No	Power ready, signal present, clip, protect, thermal and standby indicators for each channel	19x5.75x15.38	46	$895
1,800W (max)	Short circuit; RF; thermal; DC offset	Yes	Yes	Power, clip, signal, protect	19x5.25x10	31	$559
2,400W (max)	Short circuit; RF; thermal; DC offset	Yes	Yes	Power, clip, signal, protect	19x5.25x10	36	$699
1,200W (max)	Short circuit; RF; thermal; DC offset	Yes	Yes	Power, clip, signal, protect	19x3.5x10	26	$449
180W (max)	Short circuit; RF; thermal; DC offset	No	No	Power, clip, signal, protect	19x1.75x10	11	$229
480W (max)	Short circuit; RF; thermal; DC offset	Yes	Yes	Power, clip, signal, protect	19x3.5x10	21	$339
900W (max)	Short circuit; RF; thermal; DC offset	Yes	Yes	Power, clip, signal, protect	19x3.5x10	23	$399
N/A	Short circuit; thermal overload; clip	Yes	No	Power, fault, onset of clip	19x5.5x14	49	$5,050
N/A	Short circuit; thermal overload; clip	Yes	No	Power, fault, onset of clip	19x11x16	40	$12,850
625W	Tour Class (Instantaneous Gain Modulation, Active Clip Limiting, Auto Ramp, thermal, DC, short circuit)	Yes	Yes	Clip	19x5.25x12	38	V: $660 VS: $590
935W	Tour Class (Instantaneous Gain Modulation, Active Clip Limiting, Auto Ramp, thermal, DC, short circuit)	Yes	Yes	Clip	19x5.25x12	39	V: $780 VS: $690
1,250W	Tour Class (Instantaneous Gain Modulation, Active Clip Limiting, Auto Ramp, thermal, DC, short circuit)	Yes	Yes	Yes	19x5.25x12	46	V: $900 VS: $790
1,490W	Tour Class (Instantaneous Gain Modulation, Active Clip Limiting, Auto Ramp, thermal, DC, short circuit)	Yes	Yes	Yes	19x5.25x12	47	V: $1,160 VS: $1,050
1,020W	Tour Class (Instantaneous Gain Modulation, Active Clip Limiting, Auto Ramp, thermal, DC, short circuit)	Yes	Yes	Yes	19x5.25x13.33	49	V: $1,390 VS: $1,250
1,000W	Short circuit, overload, delayed turn on; Delta Comp Limiter	Fuse	No	Peak LED	19x3.5x14.875	25	$779.99
1,400W	Short circuit; overload; delayed turn on	Fuse	Yes	Signal and peak	19x5.25x14.875	29	$999.99
130W	Short circuit; thermal overload	Fuse	Yes	Clip, signal present	8.45x1.75x8.25	9	$289
250W idle; 400W peak	AC mains and B+ current in rush limited	AC mains fuse and B+ fuse	No	1 LED power; 2 linear fluorescent output indicator tubes	19x8x8.75 including case	35	$2,595
250W (max)	± Rail Fuses	15A fuse	Yes	Power	19x5.25x12.5	50	$2,200

POWER AMPS

Manufacturer	Model	Continuous Avg. Power Into 8Ω (20 Hz–20 kHz ± 1 dB)	Continuous Avg. Power Into 4Ω (20 Hz–20 kHz ± 1 dB)	Frequency Response	Signal-to-Noise	Total Harmonic Distortion	Damping Factor	Slew Rate
Hafler	P1000	50W per channel	55W per channel	0.1 Hz–100 kHz	100 dB	<0.2%	900 (up to 1 kHz); 400 (to 10 kHz); 40 (to 100 kHz)	20 V/µs
Hafler	P1500	75W per channel	85W per channel	0.15 Hz–300 kHz	100 dB	<0.1%	350 (to 1 kHz); 150 (to 10 kHz); 18 (to 100 kHz)	100 V/µs
Hafler	P3000	150W per channel	200W per channel	0.15 Hz–300 kHz	100 dB	<0.1%	400 (to 1 kHz); 200 (to 10 kHz); 18 (to 100 kHz)	100 V/µs
Hafler	P4000	200W per channel	275W per channel	0.2 Hz–200 kHz	100 dB	<0.1%	500 (to 1 kHz); 150 (to 10 kHz); 18 (to 100 kHz)	100 V/µs
Hafler	P7000	350W per channel	500W per channel	0.2 Hz–200 kHz	100 dB	<0.1%	600 (to 1 kHz); 200 (to 10 kHz); 25 (to 100 kHz)	100 V/µs
Hot House	Model 400	125W per channel	200W per channel	3 Hz–100 kHz	>100 dB	0.01%	>200	>60 V/µs
Hot House	Model 600	195W per channel	325W per channel	3 Hz–100 kHz	>100 dB	<0.05%	>200	>60 V/µs
Hot House	Model 1000	350W per channel	500W per channel	3 Hz–100 kHz	>100 dB	<0.05%	>200	>60 V/µs
Hot House	Model 2000	450W per channel	700W per channel	3 Hz–100 kHz	>100 dB	<0.05%	>200	>60 V/µs
Independent Audio	ATC SPA2-150	200W per channel	200W per channel	5 Hz - 20 kHz ±0.1 dB	>110 dB	-95 dB	N/A	N/A
JBL	MPX300	200W per channel	300W per channel	20 Hz–20 kHz	100 dB	0.15%	>200 @ 8Ω	N/A
JBL	MPX600	400W per channel	600W per channel	20 Hz–20 kHz	100 dB	0.15%	>200 @ 8Ω	N/A
JBL	MPX1200	800W per channel	1,200W per channel	20 Hz–20 kHz	100 dB	0.15%	>200 @ 8Ω	N/A
Kensington	FTX-1001	120W per channel	175W per channel	20 Hz–100 kHz	>100 dB	0.007%	>250 @ <1 kHz (ref. 8Ω)	50 V/µs
Kensington	FTX-1501	200W per channel	300W per channel	20 Hz–100 kHz	>100 dB	0.007%	>250 @ <1 kHz (ref. 8Ω)	50 V/µs
Kensington	FTX-2001	300W per channel	500W per channel	20 Hz–100 kHz	>105 dB	0.007%	>250 @ <1 kHz (ref. 8Ω)	50 V/µs
Kensington	GFT-1800	200W per channel	300W per channel	20 Hz–100 kHz	>100 dB	<0.05%	>250 @ <1 kHz (ref. 8Ω)	50 V/µs
Kensington	MFA-6000	525W per channel	800W per channel	8 Hz–100 kHz	>105 dB	0.025%	>200 @ <1 kHz (ref. 8Ω)	25 V/ms
Kensington	MFA-8000	750W per channel	1,200W per channel	8 Hz–100 kHz	>105 dB	0.025%	>200 @ <1 kHz (ref. 8Ω)	25 V/ms
Kensington	SRA-120	45W per channel	60W per channel	20 Hz–20 kHz	100 dB	<0.01%	>200 @ <1 kHz (ref. 8Ω)	<10 V/µs stereo; >20 V/µs mono
Lexicon	NT Series-Model 212	120W per channel	200W per channel	1 Hz–100 kHz	>110 dB	0.01%	>500	60 V/µs
Lexicon	NT Series-Model 225	250W per channel	400W per channel	1 Hz–100 kHz	>110 dB	0.01%	>500	60 V/µs
Lexicon	NT Series-Model 312	400W per channel	200W per channel	1 Hz–100 kHz	>110 dB	0.01%	>500	60 V/µs
Lexicon	NT Series-Model 412	400W per channel	200W per channel	1 Hz–100 kHz	>110 dB	0.01%	>500	60 V/µs
Lexicon	NT Series-Model 501	500W per channel	800W per channel	1 Hz–100 kHz	>110 dB	0.01%	>300	60 V/µs
Mackie Designs	M1400	800W per channel	1,200W per channel	20 Hz–40 kHz	>107 dB	<0.025% @ 8Ω <0.05% @ 4Ω <0.15% @ 2Ω	>350 (0–400 Hz)	Voltage slew rate >50 V/µs to >100 V/µs bridged; current slew rate >32 A/µs
Manley Labs	Manley Studio 240	220	350	10 Hz - 30 kHz				
Manley Labs	Manley Studio 440	400	500	10 Hz - 30 kHz				

Power Consumption	Protection Features	AC Circuit Breaker	Ground Lift	Indicator Lights	Dimensions (inches)	Weight (lbs.)	Price
260W (max)	NOMAD (Non-Multiplying Advanced Decision)	2A fuse	Yes	Power, signal, clipping, thermal	19x1.75x8.375	12	$569
325W (max)	Short-circuit protection	4A fuse	Yes	Power, signal, clipping, thermal	19x3.5x8.5	22	$599
600W (max)	Short-circuit protection	5A fuse	Yes	Power, signal, clipping, thermal	19x3.5x9.875	23	$779
720W (max)	Short-circuit protection	10A fuse	Yes	Power, signal, clipping, thermal	19x5.25x11	34	$999
1,440W (max)	Short-circuit protection	5A fuse	Yes	Power, signal LEDs, clipping, thermal, short	19x3.5x12.875	40	$1,399
600W	RC network for RF; no other protection necessary	5A Fuse	N/A	N/A	19x3.5x10.5	28	$1,699
1,000W	RC network for RF; no other protection necessary	8A fuse	N/A	N/A	19x5.25x10.5	32	$2,399
1,500W	RC network for RF; no other protection necessary	10A Fuse	N/A	N/A	19x5.25x10.5	38	$2,799
1,500W per channel (dual mono amp w/ two line cords)	RC network for RF; no other protection necessary	12A fuse per channel	One on each channel	True RMS clip/channel	19x8.75x17	95	$3,999
600W	Over temperature and DC offset	No	No	Yes	5x 17.5x13	61	$3,699
6.9 amps (117 VAC)	Full short circuit; open circuit; ultrasonic and RF protection; current limiting, thermal limiting; stable into reactive or mismatched loads	No	Yes (rear panel)	Power, signal present, clip, protect	19x5.25x16.1	41	$988
13.6 amps (117 VAC)	Full short circuit; open circuit; ultrasonic and RF protection; current limiting, thermal limiting; stable into reactive or mismatched loads	No	Yes (rear panel)	Power, signal present, clip, protect	19x5.25x16.1	47	$1,428
22.9 amps (117 VAC)	Full short circuit; open circuit; ultrasonic and RF protection; current limiting, thermal limiting; stable into reactive or mismatched loads	No	Yes (rear panel)	Power, signal present, clip, protect	19x5.25x16.1	65	$2,418
425W (max), 5 amps	Short circuit; thermal overload; DC offset; RF	Fuse	Yes	11-segment LED meters, protect LEDs	19x3.5x16.5	37	$739
760W, 8 amps	Short circuit; thermal overload; DC offset; RF	Fuse	Yes	11-segment LED meters, protect LEDs	19x3.5x16.5	41	$839
1,350W, 12 amps	Short circuit; thermal overload; DC offset; RF	Fuse	Yes	11-segment LED meters, protect LEDs	19x5.25x16.5	53	$1,049
760W, 8 amps	Short circuit; thermal overload; DC offset; RF	Fuse	Yes	11-segment LED meters, protect LEDs	19x3.5x15.75	37	$849
1,800W (max), 18 amps	Short circuit; thermal overload; DC offset; RF	Fuse	Yes	11-segment LED meters, limit LEDs, thermal LEDs, protect LEDs	19x5.25x16.5	54	$1,799
3,000W (max), 20 amps	Short circuit; thermal overload; DC offset; RF	Fuse	Yes	11-segment LED meters, limit LEDs, thermal LEDs, protect LEDs	19x5.25x16.5	61	$2,299
350W (max)	Short circuit; thermal overload; DC offset; RF	Fuse	Yes (on barrier strip)	Signal present, clip, protect LEDs	19x1.75x10	18	$469
675W	Internally and externally fused	No	Yes	Power on, near clipping, clipping	17x5.25x9	22	$1,695
1,350W	Internally and externally fused	No	Yes	Power on, near clipping, clipping	17x5.25x15.5	40	$2,295
1,020W	Internally and externally fused	No	Yes	Power on, near clipping, clipping	17x5.25x15.5	33	$2,495
1,350W	Internally and externally fused	No	Yes	Power on, near clipping, clipping	17x5.25x15.5	44	$2,995
1,350W	Internally and externally fused	No	Yes	Power on, near clipping, clipping	17x5.25x15.5	44	$2,295
65W at idle	Short circuit; thermal	No	No	Signal present, -20, -9, -6, -3, OL each channel	17.25x15.25x3.5	36	$599
1400W	Tubes	fuse	N/A	Yes	19x8.75x11	75	$7,000
1400W	Tubes	fuse	N/A	Yes	19x8.75x11	75	$9,500 (pair)

POWER AMPS

Manufacturer	Model	Continuous Avg. Power Into 8Ω (20 Hz–20 kHz ± 1 dB)	Continuous Avg. Power Into 4Ω (20 Hz–20 kHz ± 1 dB)	Frequency Response	Signal-to-Noise	Total Harmonic Distortion	Damping Factor	Slew Rate
Miles Technology	MPR-450	60W per channel	75W per channel	20 Hz–20 kHz	>100 dB	0.15%	>400	Not slew limited
OMNIPower	B500B	Channel A: 255W Channel B: 210W	Channel A: 385W Channel B: 275W	5 Hz–30 kHz	100 dB	N/A	100	N/A
OMNIPower	Microamp 100	50W per channel	60W per channel	55 Hz–30 kHz	100 dB	0.1%	90	N/A
OMNIPower	Microtube 100	41W per channel	57W per channel	20 Hz–30 kHz	100 dB	N/A	2	N/A
Panasonic	WP-1200	120W per channel	240W per channel	20 Hz–20 kHz	>100 dB	<0.1%	>100 @ 1 kHz 8Ω	N/A
Panasonic	WP-1400	240W per channel	400W per channel	20 Hz–20 kHz	>100 dB	<0.1%	>100 @ 1 kHz 8Ω	N/A
Peavey	CS200X	85W per channel	85W per channel	10 Hz–40 kHz	100 dB	<0.1%	>200 @ 4Ω	15 V/µs
Peavey	CS400X	130W per channel	210W per channel	5 Hz–50 kHz	100 dB	0.03%	>200 @ 4Ω	40 V/µs
Peavey	CS800S	240W per channel	420W per channel	3 Hz–60 kHz	100 dB	0.03%	>1000 @ 4Ω	40 V/µs
Peavey	CS1000X	325W per channel	525W per channel	5 Hz–50 kHz	100 dB	0.03%	>200 @ 4Ω	40 V/µs
Peavey	CS1800G	350W per channel	600W per channel	5 Hz–50 kHz	100 dB	0.03%	>300 @ 4Ω	40 V/µs
Peavey	CS3000G	600W per channel	1,000W per channel	5 Hz–50 kHz	100 dB	0.03%	>300 @ 8Ω	40 V/µs
Peavey	PV2.6C	100W per channel	130W per channel	10 Hz–40 kHz	100 dB	<0.1%	>200 @ 8Ω	20 V/µs
Peavey	PV500	130W per channel	210W per channel	10 Hz–40 kHz	100 dB	<0.1%	>300 @ 8Ω	20 V/µs
Peavey	PV1200	270W per channel	425W per channel	10 Hz–40 kHz	100 dB	<0.1%	>300 @ 8Ω	20 V/µs
Peavey	PV2000	400W per channel	650W per channel	10 Hz–40 kHz	100 dB	<0.1%	>300 @ 8Ω	20 V/µs
QSC Audio Products	MX700	150W per channel	225W per channel	20 Hz–20 kHz	100 dB	0.1%	>200	N/A
QSC Audio Products	MX1000a	250W per channel	350W per channel	20 Hz–20 kHz	100 dB	0.05%	>200	N/A
QSC Audio Products	MX1500a	350W per channel	500W per channel	20 Hz–20 kHz	100 dB	0.05%	>200	N/A
QSC Audio Products	MX2000a	450W per channel	650W per channel	20 Hz–20 kHz	100 dB	0.05%	>200	N/A
QSC Audio Products	MX3000a	800W per channel	1,200W per channel	20 Hz–20 kHz	100 dB	0.1%	>200	N/A
QSC Audio Products	PowerLight 1.0	200W per channel	325W per channel	20 Hz–20 kHz	108 dB	0.1%	>350	N/A
QSC Audio Products	PowerLight 1.0HV	300W per channel	500W per channel	20 Hz–20 kHz	108 dB	0.1%	>350	N/A
QSC Audio Products	PowerLight 1.4	300W per channel	500W per channel	20 Hz–20 kHz	108 dB	0.1%	>350	N/A
QSC Audio Products	PowerLight 1.5X Bi-amp	200W Ch. 1/450W Ch. 2	325 W Ch. 1/ 700W Ch. 2	20 Hz–20 kHz	108 dB	0.1%	>350	N/A
QSC Audio Products	PowerLight 1.6HVX Bi-amp	300W Ch. 1/700W Ch. 2	500 W Ch. 1/1,100W Ch. 2	20 Hz–20 kHz	108 dB	0.1%	>350	N/A
QSC Audio Products	PowerLight 1.8	400W per channel	650W per channel	20 Hz–20 kHz	108 dB	0.1%	>350	N/A
QSC Audio Products	PowerLight 2.0HV	650W per channel	1,000W per channel	20 Hz–20 kHz	108 dB	0.1%	>350	N/A
QSC Audio Products	PowerLight 2.4MB Mono-block	1000W	1,600W	20 Hz–20 kHz	108 dB	0.1%	>350	N/A
QSC Audio Products	PowerLight 3.4	725W per channel	1,200W per channel	20 Hz–20 kHz	108 dB	0.1%	>500	N/A
QSC Audio Products	PowerLight 4.0	900W per channel	1,400W per channel	20 Hz–20 kHz	108 dB	0.1%	>500	N/A
QSC Audio Products	USA 400	125W per channel	200W per channel	20 Hz–20 kHz	105 dB	0.1%	>200	N/A
QSC Audio Products	USA 900	270W per channel	450W per channel	20 Hz–20 kHz	104 dB	0.1%	>200	N/A
QSC Audio Products	USA1310	400W per channel	655W per channel	20 Hz–20 kHz	106 dB	0.1%	>200	N/A

Power Consumption	Protection Features	AC Circuit Breaker	Ground Lift	Indicator Lights	Dimensions (inches)	Weight (lbs.)	Price
780W	Short circuit; high temperature; DC offset	No	Yes	Power on, high temperature each channel: signal present, clip	19x3.5x12.7	25	$725
600W	Fused power line	No	No	N/A	19x3.25x9.5	23	$749.95
200W (95–125 VAC)	Fused power line	No	No	A pair of LED headroom indicators	19x1.75x5.63	8.25	$399.95
300W (95–125 VAC)	Fused power line	Fuse	No	Two output level clips	17.25x1.75x9.5	10.5	$499.95
270W	Thermal overload; DC offset	Yes	No	Power, peak, protection	19x5.25x15.5	25.45	$680
520W	Thermal overload; DC offset	Yes	No	Power, peak, protection	19x5.25x15.5	38.3	$840
N/A	Short circuit; thermal overload; DC; RF	Yes	No	On, DDT	19x1.75x17	18.5	$459.99
N/A	Short circuit; thermal overload; DC; RF	No	No	On, DDT	19x5.25x19	41	$699
N/A	Short circuit; thermal overload; DC; RF	Yes	No	On, DDT	19x3.5x22	23.5	$899
N/A	Short circuit; thermal overload; DC; RF	Yes	No	On, DDT	19x5.25x14	51	$1,099
N/A	Short circuit; thermal overload; DC; RF	Yes	No	On, DDT	19x3.5x17	35	$1,299
N/A	Short circuit; thermal overload; DC; RF	Yes	No	On, DDT	19x5.25x17	77	$2,199
N/A	Short circuit; thermal overload; DC; RF	Yes	No	On, DDT	19x3.5x9.6	18.5	$299.99
N/A	Short circuit; thermal overload; DC; RF	Yes	No	On, DDT	19x5.25x9	29	$399.99
N/A	Short circuit; thermal overload; DC; RF	Yes	No	On, DDT	19x5.25x13	43.5	$549.99
N/A	Short circuit; thermal overload; DC; RF	Yes	No	On, DDT	19x7x14	64	$749.99
N/A	Full short circuit; thermal muting; ultrasonic/RF protection	No	No	On, clip, protect	12x3.5	25	$675
N/A	Full short circuit; thermal muting; ultrasonic/RF protection	No	No	On, clip, protect, signal	17.9x3.5	42	$1,135
N/A	Full short circuit; thermal muting; ultrasonic/RF protection	No	No	On, clip, protect, signal	17.9x3.5	42	$1,195
N/A	Full short circuit; thermal muting; ultrasonic/RF protection	No	No	On, clip, protect, signal	17.9x5.25	54	$1,595
N/A	Full short circuit; thermal muting; ultrasonic/RF protection	No	No	On, clip, protect, signal	17.9x5.25	69	$2,355
N/A	Full short circuit; thermal muting; ultrasonic/RF protection	No	No	On, clip, protect, signal, standby	17.9x3.5	18	$1,488
N/A	short circuit; thermal muting; ultrasonic/RF protection	No	No	On, clip, signal, standby	17.9 x 3.5	18	$1,578
N/A	Full short circuit; thermal muting; ultrasonic/RF protection	No	No	On, clip, protect, signal, standby	17.9x3.5	18	$1,698
N/A	short circuit; thermal muting; ultrasonic/RF protection	No	No	On, clip, signal, standby	17.9 x 3.5	18	$1,728
N/A	short circuit; thermal muting; ultrasonic/RF protection	No	No	On, clip, signal, standby	17.9 x 3.5	18	$1,868
N/A	Full short circuit; thermal muting; ultrasonic/RF protection	No	No	On, clip, protect, signal, standby	17.9x3.5	18	$2,028
N/A	Full short circuit; thermal muting; ultrasonic/RF protection	No	No	On, clip, protect, signal, standby	17.9x3.5	18	$2,198
N/A	short circuit; thermal muting; ultrasonic/RF protection	No	No	On, clip, signal, standby	17.9 x 3.5	18	$2,068
N/A	Full short circuit; thermal muting; ultrasonic/RF protection	No	No	On, clip, protect, signal, standby	17.9x5.25	30	$2,998
N/A	Full short circuit; thermal muting; ultrasonic/RF protection	No	No	On, clip, protect, signal, standby	17.9x5.25	30	$3,398
N/A	Full short circuit; thermal muting; ultrasonic/RF protection	Yes	No	On, clip, protect	9.5x5.25	24	$675
N/A	Full short circuit; thermal muting; ultrasonic/RF protection	Yes	No	On, clip, protect	9.5x5.25	34	$805
N/A	Full short circuit; thermal muting; ultrasonic/RF protection	Yes	No	On, clip, protect	10.8x7	54	$1,165

POWER AMPS

Manufacturer	Model	Continuous Avg. Power Into 8Ω (20 Hz–20 kHz ± 1 dB)	Continuous Avg. Power Into 4Ω (20 Hz–20 kHz ± 1 dB)	Frequency Response	Signal-to-Noise	Total Harmonic Distortion	Damping Factor	Slew Rate
Rane	MA6S	100W per channel	150W per channel	20 Hz–20 kHz	103 dB	0.07%	300 @ 1 kHz	N/A
Roland	SRA-260	130W x 2	210W x 2	10 Hz–50 kHz	≥105 dB	0.1%	>150	20 V/µs or greater
Roland	SRA-540 Dual-Channel Power Amplifier	270W x 2	425W x 2	10 Hz–50 kHz	≥105 dB	0.1%	>150	20 V/µs or greater
Roland	SRA-800 Dual-Channel Power Amplifier	400W x 2	650W x 2	10 Hz–50 kHz	≥105 dB	0.1%	>150	20 V/µs or greater
RSP Technologies	Surround 600	100W per channel	150W per channel	20 Hz–20 kHz	103 dB	0.01%	N/A	N/A
Samson	Servo 120	52W per channel	60W per channel	10 Hz–100 kHz	105 dB	<0.05%	>150	N/A
Samson	Servo 170	60W per channel	85W per channel	20 Hz–50 kHz	103 dB	<0.01%	N/A	N/A
Samson	Servo 260	90W per channel	130W per channel	20 Hz–50 kHz	103 dB	<0.03%	>100	N/A
Samson	Servo 550	220W per channel	275W per channel	20 Hz–50 kHz	103 dB	<0.03%	>100	N/A
Soundtech	PL200	65W per channel	100W per channel	20 Hz–20 kHz	90 dB	<0.1%	>300:1	48 V/µs
Soundtech	PL602	200W per channel	300W per channel	20 Hz–20 kHz	120 dB	<0.1%	>300:1	40 V/µs
Soundtech	PS802	230W per channel	400W per channel	20 Hz–20 kHz	120 dB	<0.05%	200:1	42 V/µs
Stewart Electronics	Pro Reference 1000	200W per channel	350W per channel	15 Hz–20 kHz	>108 dB	<0.05%	>500	>35 V/µs
Stewart Electronics	Pro Reference 500	110W per channel	190W per channel	15 Hz–20 kHz	>108 dB	<0.05%	>500	>35 V/µs
Stewart Electronics	World 1.2	240W per channel	420W per channel	20 Hz–20 kHz	>100 dB	<0.1%	>500	>30 V/µs
Stewart Electronics	World 1.6	390W per channel	650W per channel	20 Hz–20 kHz	>100 dB	<0.1%	>500	>30 V/µs
Stewart Electronics	World 2.1	475W per channel	675W per channel	20 Hz–20 kHz	>100 dB	<0.1%	>500	>30 V/µs
Stewart Electronics	World 250	70W per channel	120W per channel	20 Hz–20 kHz	>100 dB	0.05%	>500	>30 V/µs
Stewart Electronics	World 600	130W per channel	230W per channel	20 Hz–20 kHz	>100 dB	<0.1%	>500	>30 V/µs
Studiomaster	700 D	210 x 210 (8)	350 x 350 (4)	20 Hz - 20 kHz	100 dB	0.008%	200	20V/HS
Studiomaster	1200 D	375 x 375 (8)	600 x 600 (4)	20 Hz - 20 kHz	100 dB	0.015%	200	20V
TASCAM	PA-20MKII	25W per channel	N/A	20 Hz–20 kHz	85 dB	0.05%	80 @ 8Ω	N/A
TASCAM	PA-150	120W per channel	150W per channel	20 Hz–20 kHz	90 dB	0.06%	45 @ 8Ω	N/A
Tube Works	Tubeworks 1160 MosValve	60W per channel	80W per channel	N/A	Better than 95 dB@8 ohms	N/A	N/A	N/A
Tube Works	Tubeworks 1500 MosValve	185W per channel	250W per channel	N/A	Better than 97 dB@8 ohms	N/A	N/A	N/A
Whirlwind	P-12	11W per channel	12W per channel	20 Hz–30 kHz	101 dB	0.2%	N/A	9.6 V/µs
Whirlwind	P45A, P45B	45W per channel	50W per channel	10 Hz–80 kHz	113 dB	N/A	N/A	18 V/µs
Yamaha	A100A	50W per channel	N/A	20 Hz–20 kHz	107 dB	0.2%	>70	10 V/µs
Yorkville Sound	SR-300	200W per channel	300W per channel	20 Hz–20 kHz	95 dB	0.01%	>400	10 V/µs

Power Consumption	Protection Features	AC Circuit Breaker	Ground Lift	Indicator Lights	Dimensions (inches)	Weight (lbs.)	Price
2,200W (max)	Main fuse, fuse on each channel, forced cooling	No	No	Channel-ready LED, clip limit LED, SOA limit LED	19x5.25x11	44	$1,599
400W	Power on/off; DC protection; Thermal protection; PC limiter	No	Yes	Protection (2), power, clip (2), signal (2)	19x3.5x17 7/16	27	$795
750W	Power on/off; DC protection; Thermal protection; PC limiter	No	Yes	Protection (2), power, clip (2), signal (2)	19x 3.5x17 7/16	33	$995
1050W	Power on/off; DC protection; Thermal protection; PC limiter	No	Yes	Protection (2), power, clip (2), signal (2)	19x5.25x17 5/8	41	$1,295
1400W (max)	Auto thermal shutdown	No	N/A	Clip, thermal	19x3.5x12.5	35	$1,499
240W	Short circuit; thermal protection; DC offset	No	No	Protection, LED, 5-segment, 3-color level meters, Power LED, speaker-disable LED (for private headphone use)	17.5 (19 with rack ears included)x1.75x11.5	15.6	$199.99
838W (115 VAC),	Thermal protection; DC offset	Fuse	No	Clip, idle, protect, power	19x5.2x9.2	13.7	$269.99
420W	Short circuit; thermal overload; DC offset	No	No	Clip, peak, protect, power	19x1.72x10.4	14.3	$499.90
430W (155 VAC); 430W (240 VAC)	Thermal protection; DC offset	Fuse	No	Clip, idle, protect, power	19x3.5x9.5	17.6	$349.99
310W (115 VAC); 335W (240 VAC)	Thermal protection; DC offset	Fuse	No	Clip, protect, power, mono bridge	1.72x10.4x19	14.3	$479.90
1,080W	Short circuit; thermal overload; DC offset, current limit; power-up/down; AC line fuse	No	No	Clip, protect, power, mono bridge	19x3.47x14	34.1	$649.90
1,000W	Short circuit; thermal overload; DC offset, current limit; power-up/down; AC line fuse	No	Yes	Clip, protect, power, mono bridge	19x1.72x14	15.8	$749.90
5.25 amps (120 VAC)	7-stage circuit guard protection; short circuit; thermal overload; DC offset; RF	Yes	No	Clip, signal, power	19x1.72x15	11	$1,099
3.5 amps (120 VAC)	7-stage circuit guard protection; short circuit; thermal overload; DC offset; RF	Yes	No	Clip, signal, power	19x1.72x15	10	$799
6 amps (120 VAC)	7-stage circuit guard protection; short circuit; thermal overload; DC offset; RF	Yes	No	Clip, signal, power	19x1.72x15	11	$999
5 amps (120 VAC)	7-stage circuit guard protection; short circuit; thermal overload; DC offset; RF	Yes	No	Clip, signal, power	19x1.72x15	16	$1,199
5 amps (120 VAC)	7-stage circuit guard protection; short circuit; thermal overload; DC offset; RF	Yes	No	Clip, signal, power	19x1.72x15	17	$1,399
5.25 amps (120 VAC)	7-stage circuit guard protection; short circuit; thermal overload; DC offset; RF	Yes	No	Clip, signal, power	19x1.72x5.5	5.5	$469
5.8 amps (120 VAC)	7-stage circuit guard protection; short circuit; thermal overload; DC offset; RF	Yes	No	Clip, signal, power	19x1.72x15	10	$699
1600W	Gated power stage, crow bar speaker protection	No	Yes	Peak, temp, fault, mono, bridge, power	17x16x3 9/16	38	$649
2400W	Gated power stage, crow bar speaker protection	No	Yes	Peak, temp, fault, mono, bridge, power	17x16x3 9/16	45	$995
90W	DC balance protection; overload protection	Yes	Yes	Clip, power, protect	19x1.72	9.9	$250
620W	DC offset; power overload temperature detection	Yes	Yes	Clip, power, protect	19x5.25	19.4	$400
Max 120 VAC, 400W	Short circuit; thermal			Power (1), clip (2)	3.5x19x7	13	$375
120/240 VAC, 1400W	Short circuit; thermal; time delay turn-on relay			Power (1), clip (2)	3.5x19x11.5	30	$625
75W	SOAR	No	No	Clip	19x1.72	N/A	$239
250W	SOAR (includes short circuit, thermal)	No	Yes	Clip LED	19x1.72	N/A	P45A: $499 P45B: $539
120W	Short circuit; thermal overload; DC detector	No	No	Meters, clip indicators	11.625x3.75x8.6875	10	$329
500W (max)	Current limit, thermal overload	Fuse	No	Activity, clip, limit	19x3.5x3.5	22.5	$499

POWER CONDITIONERS

Manufacturer	Model	# of Receptacles	Output Current/Load Rating	Maximum Surge Current Rating	Spike Protection Modes/# of MOVs	Spike Response Time	Line Regulation	Balanced Power	Rack Mount/Number of Spaces	UPS
Crown	Smart-UPS	4, 6, or 8	400 VA to 3000 VA	6.5 kA	None	N/A	25% - + 20%	Yes	Optional, 3	Yes
Equi-Tech	ET1R Balanced Power Rack System	10	10 amps/120 volts	240 joules	N/A	N/A	No	Yes	Yes, 2	No
ETA Systems	Pro Series	11	20 amps/120 volts	26,000 amps	6	1 ns	No	No	Yes, 1	No
Furman	PL-8	9 (1 front/8 rear)	15 amps/120 volts	6,500 amps	Line-neutral, neutral-gnd, line-gnd, 3	1 ns	No	No	Yes, 1	No
Furman	PL-Plus/ PRO Series	9 (1 front/8 rear)	15 amps (20 amps PRO)/120 volts	6,500 amps	Line-neutral, neutral-gnd, line-gnd, 3	1 ns	No	No	Yes, 1	No
Furman	PL-Tuner Power Conditioner and Instrument Tuner	9 (1 front/8 rear)	15 amps/120 volts	6,500 amps	Line-neutral, neutral-gnd, line-gnd, 3	1 ns	No	No	Yes, 1	No
Furman	PLH-15 Power and Light Center	9 (1 front/8 rear)	15 amps/120 volts	6,500 amps	Line-neutral, neutral-gnd, line-gnd, 3	1 ns	No	No	Yes, 1	No
Furman	PM-8/PRO Power Conditioner/Monitor	9 (1 front/8 rear)	15 amps/120 volts	6,500 amps	Line-neutral, neutral-gnd, line-gnd, 3	1 ns	No	No	Yes, 1	No
Furman	PowerPort Remote AC Power Controller/Conditioner	2	20 amps/120 volts	6,500 amps	Line-neutral, neutral-gnd, line-gnd, 3	1 ns	No	No	Yes, 1	No
Furman	PS-8/8R/ PRO Series Power Conditioner/Sequencer	9 (1 front/8 rear)	15 amps/120 volts	6,500 amps	Line-neutral, neutral-gnd, line-gnd, 3	1 ns	No	No	Yes, 1	No
Juice Goose	JG 8.0	8	15 amps/120 volts 1800 watts	N/A	1 MOV	N/A	No	No	Yes, 1	No
Juice Goose	JG 8.0L	8	15 amps/120 volts 1800 watts	N/A	1 MOV	N/A	No	No	Yes, 1	No
Juice Goose	JG 8.0LM	8	15 amps/120 volts 1800 watts	N/A	1 MOV	N/A	No	No	Yes, 1	No
Juice Goose	Rackpower 100 - 20A (RP100-20A)	8 nema 5/20 outlets	15 amps/120 volts 2400 watts	N/A	3 MOVs	N/A	No	No	Yes, 1	No
Juice Goose	Rackpower 100 (RP 100)	11	15 amps/120 volts 1800 watts	N/A	3 MOVs	N/A	No	No	Yes, 1	No
Juice Goose	Rackpower 200 - 20A (RP200-20A)	8 nema 5/20	15 amps/120 volts 2400 watts	N/A	3 MOVs	N/A	No	No	Yes, 1	No
Juice Goose	Rackpower 200 (RP200)	10	15 amps/120 volts 1800 watts	N/A	3 MOVs	N/A	No	No	Yes, 1	No

EMI & RFI Filtering: Filter/Capacitor	Voltage Meter: Analog/Digital	Lights Number	Battery Backup	Warranty Years	Dimensions	Weight	Special Features	Price
Yes	Yes via software; digital	None	Yes	2	2.25"x11.9 "x15.5" to 17"x7.7"x21.5"	17 lbs. to 123 lbs.	Sine wave output to manipulate interference	$325 to $2359
Filter optional	None	None	No	2 standard; lifetime replacement on transformer	16"x12.5"x3.5"	36 lbs.	Five additional models with custom optional features available	$879
Yes	Digital	2 swivel illuminators	No	1	19"x 0"x1.75"	10 lbs.	3-stage protection	$220 to $650
Capacitor	None	2, slide out, with dimmer	No	3	1.75"x19"x8"	6 lbs.	8 accessory outlets in rear controlled by front switch; triple-mode varistor spike and surge protection; RFI filtering; 15 amp rating; circuit breaker; separate switch for lamps	$159
Filter	Three-color, 20-LED bargraph	2, slide out, with dimmer	No	3	1.75"x19"x8"	6 lbs.	(PL-Plus) 8 accessory outlets in rear controlled by front switch; triple-mode varistor spike and surge protection; RFI filtering; 15 amp rating; circuit breaker; separate switch for lamps (PRO) 20 amp rating handles even largest amps; Extreme Voltage Shutdown feature guards against destructive wiring faults; critical functions are monitored by a "smart"microprocessor; LED status indicators report on problems	$229 (PL-Plus) $399 (PRO)
Filter	None	2, slide out, with dimmer	No	3	1.75"x19"x8"	6 lbs.	Guitar/bass tuner with seven octave range; fully automatic triple-mode "Lock On" feature; Sharp and Flat lights emulate "beats" by blinking at variable speeds proportional to the tuning error	$279
Filter	Three-color, 20-LED bargraph	2, slide out, with dimmer	No	3	1.75"x19"x8"	6 lbs.	Eight accessory AC outlets in rear: two switched, two delayed switched, and four unswitched; triple-mode varistor spike and surge protection; RFI filtering; In/Out "F" connectors for video cable	$229 (PL-Plus) $399 (PRO)
Capacitor/ Filter (Pro)	Three-color, 20-LED bargraph; Three-color, 10-LED true-RMS current meter	None	No	3	1.75"x19"x8"	6 lbs.	(PM-8) Eight accessory AC outlets in rear; triple-mode varistor spike and surge protection; RFI filtering (PRO) 20 amp rating; RF filtering	$199 (PL-Plus) $359 (PRO)
Filter	None	None	No	3	1.75"x19"x8"	6 lbs.	Controls one 20 amp circuit; turn-on/off switches for multi-location control; Provides the same spike and surge clamping and EMI/RFI filtering as Furman PRO-Series	$329
Filter	None	None	No	3	1.75"19"8"	6 lbs.	(PS-8) capable of powering up/down a rack of equipment w/3 delayed outlet groups; (8R) same as above plus remote switching; (PRO) above, plus multiple levels of protection	$329 (PS-8) $359 (PS-8R) $469 (PRO)
Filter	None	None	No	3, transferable	1.75"x19"x7"	5 lbs.		$85
Filter	None	2, pull out	No	3, transferable	1.75"x19"x7"	6 lbs.		$120
Filter	LED voltage meter	2, pull out	No	3, transferable	1.75"x19"x7"	6 lbs.		$189
Filter	None	BNC connector	No	3, transferable	1.75"x19"x7"	10 lbs.	Tour class chassis	$260
Filter	None	None	No	3, transferable	1.75"x19"x7"	10 lbs.	BNC connector for gooseneck light; tour class chassis	$179
Filter	None	2, pull out	No	3, transferable	1.75"x19"x7"	10 lbs.	Tour class chassis	$329
Filter	20 LED voltage meter	2, pull out	No	3, transferable	1.75"x19"x7"	10 lbs.	Tour class chassis	$282

POWER CONDITIONERS

Manufacturer	Model	# of Receptacles	Output Current/Load Rating	Maximum Surge Current Rating	Spike Protection Modes/# of MOVs	Spike Response Time	Line Regulation	Balanced Power	Rack Mount/Number of Spaces	UPS
Juice Goose	Rackpower 320 (RP320)	10	15 amps/120 volts/ 1800 watts	N/A	3 MOVs	N/A	N/A	No	Yes, 1	No
Newpoint	Theater Director	8	15 amps/120 volts	1370	N/A	<1 ns	<95V, >126V	No	Yes, 2	No
OPTI-UPS	OPTI-UPS 1000E	4 outlets	8.33 amps/120 volts	6500 amps	3	<1 ns	120V ±10%	Yes	No	Yes
OPTI-UPS	OPTI-UPS 1400E	4 outlets	11.67 amps/120 volts	6500 amps	3	<1 ns	120V ±10%	Yes	No	Yes
OPTI-UPS	OPTI-UPS 280E	2 outlets	2.33 amps/120 volts	6500 amps	3	<1 ns	120V ±10%	Yes	No	Yes
OPTI-UPS	OPTI-UPS 420E	2 outlets	3.50 amps/120 volts	6500 amps	3	<1 ns	120V ±10%	Yes	No	Yes
OPTI-UPS	OPTI-UPS 650E	4 outlets	5.42 amps/120 volts	6500 amps	3	<1 ns	120V ±10%	Yes	No	Yes
Panamax	Max 1000+ Surge Protector/Line Conditioner	8	15 amps	40,000 amps	Line-neutral, line-ground, neutral-ground	Instantaneous	No	NO	Yes, 1 spaces	No
Panamax	Max 1500 Surge Protector and Line Cond.	10	15 amps	40,000 amps	Line-neutral, line-ground, neutral-ground	Instantaneous	No	No	Yes, 2 spaces	No
Tripp Lite	IBAR 12 Rackmount Surge Suppressor	12	120V/1800 VA	750J	None	Instantaneous	Yes	Yes	Yes, 1	No
Tripp Lite	LC 1200 Line Conditioner	4 NEMA 5 - 15 R	120V/1250W	500J	None	Instantaneous	Yes	Yes	No	No
Tripp Lite	LC 1800 Line Conditioner	6 NEMA 5 - 15 R	120V/1800 VA	600J	None	Instantaneous	Yes	Yes	No	No
Tripp Lite	LC 2400 Line Conditioner	6 NEMA 5 - 15 R	120V/2400 VA	600J	None	Instantaneous	Yes	Yes	No	No
Tripp Lite	LCR 2400 Line Conditioner	14 NEMA 5 -15 R	120V/2400 VA	600J	None	Instantaneous	Yes	Yes	Yes, 3	No
Tripp Lite	LS 600 Line Conditioner	4 NEMA 5 - 15 R	120V/600W	100J	None	Instantaneous	Yes	Yes	No	Yes
Tripp Lite	LS 604 Line Conditioner	4 NEMA 5 - 15 R	120V/600W	300J	None	Instantaneous	Yes	Yes	No	Yes
Tripp Lite	Smart 1050 RM Rackmount UPS	8	120V/1050 VA	480J	None	Instantaneous	Yes	Yes	Yes, 3	Yes
Tripp Lite	Smart 1400 RM Rackmount UPS	8	120V/1400 VA	480J	None	Instantaneous	Yes	Yes	Yes, 3	Yes

EMI & RFI Filtering: Filter/Capacitor	Voltage Meter: Analog/Digital	Lights Number	Battery Backup	Warranty Years	Dimensions	Weight	Special Features	Price
Filter	None	BNC connector	No	3, transferable	1.75"x19"x7"	10 lbs.	Ground lift switches; tour class chassis	$329
Yes	None	None	No	Lifetime + $50,000 connected equip. warranty	2.5"x17"x12"	8.5 lbs.	Master outlet; 3 delayed outlets for sensitive components; audio component-size case; cord management	$299.95
Yes	Yes digital w/analog gauge using set	None	Yes	3, limited	5.5"x16.8"x7.7"	35.3 lbs.	Modem/Phone protection; user replaces batt; software e-mail/page feature; AVR plug and play	$459
Yes	Yes digital w/analog gauge using set	None	Yes	3, limited	5.5"x16.8"x7.7"	43 lbs.	Modem/Phone protection; user replaces batt; software e-mail/page feature; AVR plug and play	$519.
Yes	Yes digital w/analog gauge using set	None	Yes	3, limited	4.1"x10.9"x5.6"	14.7 lbs.	Modem/Phone protection; user replaces batt; software e-mail/page feature; AVR plug and play	$139
Yes	Yes digital w/analog gauge using set	None	Yes	3, limited	4.1"x10.9"x5.6"	16.3 lbs.	Modem/Phone protection; user replaces batt; software e-mail/page feature; AVR plug and play	$199
Yes	Yes digital w/analog gauge using set	None	Yes	3, limited	5.5"x16.8"x7.7"	28.7 lbs.	Modem/Phone protection; user replaces batt; software e-mail/page feature; AVR plug and play	$259
50 dB (99.7%) from 100 kHz to 1 mHz	Digital	None	No	Lifetime Product, $5 million connected equipment	7.31"x17.14"x1.94"	6.43 lbs.	Under/over voltage protection, catastrophic surge circuit; thermal fuse	$299
55 dB (99.8%) from 100 kHz to 1 mHz	Digital	None	No	Lifetime Product	7.31"x17.14"x3.75"	7 lbs.	3 sets of coax protectors: satellite, cable TV/rooftop antenna; downline TV phone line protection; catastrophic fusing to protect circuitry; thermal fusing to prevent fire; accepts modules to expand system	$449
Yes	None	None	No	$25,000 Ult. lifetime Ins.	1.75"x17.5"x4"	4.5 lbs.		$149
Yes	None	None	No	2 year product warranty, $25,000 Ult. lifetime Ins.	6.75"x6"x6.75"	11 lbs.		$229
Yes	None	None	No	2 year product warranty, $25,000 Ult. lifetime Ins.	6.75"x6"x6.75"	11.5 lbs.		$299
Yes	None	None	No	2 year product warranty, $25,000 Ult. lifetime Ins.	6.75"x6"x6.75"	14 lbs.		$399
Yes	None	None	No	2 year product warranty, $25,000 Ult. lifetime Ins.	5.5"x19"x5"	25.5 lbs.		$459
Yes	None	None	No	2 year product warranty, $25,000 Ult. lifetime Ins.	6"x5.75"x5"	7.5 lbs.		$129
Yes	None	None	No	2 year product warranty, $25,000 Ult. lifetime Ins.	6"x5.75"x5"	7.5 lbs.		$159
Yes	N/A	None	Yes	2 year product warranty, $50,000 Ult. lifetime Ins.	5.5"x17.5"x10.75"	44 lbs.	Free software & cabling	$749
Yes	N/A	None	Yes	2 year product warranty, $50,000 Ult. lifetime Ins.	5.5"x17.5"x10.75"	53 lbs. & cabling	Free software	$949

POWER CONDITIONERS

Manufacturer	Model	# of Receptacles	Output Current/Load Rating	Maximum Surge Current Rating	Spike Protection Modes/# of MOVs	Spike Response Time	Line Regulation	Balanced Power	Rack Mount/Number of Spaces	UPS
Tripp Lite	Smart 2200 RM Rackmount UPS	8	120V/2200 VA	480J	None	Instantaneous	Yes	Yes	Yes, 5	Yes
Tripp Lite	Smart 250 Net UPS	4	120V	360J	None	Instantaneous	No	Yes	No	Yes
Tripp Lite	Smart 3000 RM Rackmount UPS	8	120V/3000 VA	480J	None	Instantaneous	Yes	Yes	Yes, 5	Yes
Tripp Lite	Smart 450 Net UPS	4	120V/450 VA	360J	None	Instantaneous	Yes	Yes	No	Yes
Tripp Lite	Smart 700 RM Rackmount UPS	8	120V/700 VA	480J	None	Instantaneous	Yes	Yes	Yes, 3	Yes
Tube Works	Tubeworks 1800 Power Conditioner and Light Module	8	15 amps/1800 watts @ 120 VAC	15 amps	3 MOVs	N/A	No	No	Yes, 1	No
VansEvers	Balanced Clean Line Basic	4	600 watts	N/A	None	N/A	No	Yes	Optional, 3	No
VansEvers	Balanced Clean Line Artist	4	600 watts	28,000 amps	Line-to-neutral, neutral-ground, 3 MOVs, 2 gas surge arrestors	<15 ns	No	Yes	Optional, 3	No
VansEvers	Clean Line Junior Model 11 Analog	1	1800 watts	N/A	None	N/A	No	No	No	No
VansEvers	Clean Line Model 141	14: 8 analog, 6 digital	1800 watts	28,000 amps	Line-to-neutral, neutral-ground	<15 ns	No	No	Yes, 2	No
VansEvers	Clean Line Model 141-Special	8	4 x 1800 watts	28,000 amps	Line-to-neutral, neutral-ground, 3 MOVs, 2 gas surge arrestors	<15 ns	No	No	Yes, 2	No
VansEvers	Clean Line Model 83	8: 6 analog, 2 digital	1800 watts total; 240 watts digital	28,000 amps	Line-to-neutral, neutral-ground, 3 MOVs, 2 gas surge arrestors	<15 ns	No	No	Optional, 2	No
Zero Surge	1RM 15 Rackmount	8	15 amps, 120V, 50–60 Hz	100,000 amps	Series surge reactor, current limiter	Instantaneous	<1% full load	No	No	No
Zero Surge	1RM 20 Rackmount	8	20 amps, 120V, 50–60 Hz	100,000 amps	Series surge reactor, current limiter	Instantaneous	<1% full load	No	No	No
Zero Surge	2R15	2	15 amps, 120V, 50 Hz	100,000 amps	Surge reactor	Instantaneous	<1% full load	No	No	No
Zero Surge	2R7.5	2	7.5 amps, 120V, 50 Hz	100,000 amps	Surge reactor	Instantaneous	<1% full load	No	No	No
Zero Surge	8R15	8	15 amps, 120V, 50 Hz	100,000 amps	Series surge reactor, current limiter	Instantaneous	<1% full load	No	No	No
Zero Surge	8R7.5	8	7.5 amps, 120V, 50 Hz	100,000 amps	Series surge reactor, current limiter	Instantaneous	<1% full load	No	No	No

EMI & RFI Filtering: Filter/Capacitor	Voltage Meter: Analog/Digital	Lights Number	Battery Backup	Warranty Years	Dimensions	Weight	Special Features	Price
Yes	None	None	Yes	2 year product warranty, $50,000 Ult. lifetime Ins.	8.75"x17.5"x10.75"	97 lbs. +	Free software & cabling	$1,549
No	None	None	No	2 year product warranty, $50,000 Ult. lifetime Ins.	1"x7"x9"	16 lbs.	Free software & cabling	$279
Yes	None	None	Yes	2 year product warranty, $50,000 Ult. lifetime Ins.	8.75"x17.5"x10.75"	99 lbs. +	Free software & cabling	$2,299
Yes	None	None	Yes	2 year product warranty, $50,000 Ult. lifetime Ins.	11"x7"x9"	19 lbs.	Free software & cabling	$369
Yes	None	None	Yes	2 year product warranty, $50,000 Ult. lifetime Ins.	5.5"x17.5"x10.75"	32 lbs.	Free software & cabling	$599
Yes	None	Yes, 2 retractable 7 watt bulbs	No	3	19"x7"x1.75"	6 lbs.	Lights on/off switch; lights dimmer; illuminated master on/off switch	$99
Yes, capacitors	None	None	No	5	8"x5"x12"	23 lbs.	Optional polarity reverse switch; optional 120/240 VAC dual primary; optional removable power cord	$350
Capacitors, transverse and common-mode	None	None	No	5	5"x8"x12"	27 lbs.	Polarity reverse on/off switch; 120/240 VAC dual primaries; transient-impedance switches	$1,080
Dual mode transverse	None	None	No	10	2.75"x3"x10.5"	3 lbs.	Designed to be tucked behind multitrack recorders; digital version available	$250
Analog: transverse; digital: transverse or common-mode chokes and capacitors	None	None	No	10	3.5"x19"x8.75"	15 lbs.	Isolates digital from analog; additional digital filters optional; one transient-impedance switch	$1,000
Transverse and common-mode filters	None	None	No	10	3.5"x19"x8.75"	20 lbs.	Designed to supply four console power supplies or four power amps; power factor correction	$2,000
Analog: transverse; digital: transverse or common-mode chokes and capacitors	None	None	No	10	3.47"x10.6"x7"	8 lbs.	Isolates digital from analog; additional digital filters optional; one transient-impedance switch	$575
Filter/capacitor reactor	None	None	No	10	1.75"x19", model dependent	8 lbs.	Classified to new government spec. (Grade A, class 1, mode 1)	$389
Filter/capacitor reactor	None	None	No	10	1.75"x19", model dependent	10 lbs.	Classified to new government spec. (Grade A, class 1, mode 1)	$399
Filter/capacitor reactor	None	None	No	10	3.1"x7.85"x3.75"	4.75 lbs.	Classified to new government spec. (Grade A, class 1, mode 1)	$169
Filter/capacitor reactor	None	None	No	10	3.1"x7.85"x3.75"	4.75 lbs.	Classified to new government spec. (Grade A, class 1, mode 1)	$125
Filter/capacitor reactor	None	None	No	10	3.9"x8.3"x4.0"	5.25 lbs.	Classified to new government spec. (Grade A, class 1, mode 1)	$229
Filter/capacitor reactor	None	None	No	10	3.9"x8.3"x4.0"	5.25 lbs.	Classified to new government spec. (Grade A, class 1, mode 1)	$169

RECORDING/EDITING SOFTWARE

Manufacturer	Product	Platform	# of Audio Tracks	Waveform Editing	Audio Effects	Fade Types	Dynamics Processing	Time Compression	Pitch-Shift Type
AnTares Systems	Infinity 2.08	Mac	1 or 2	Yes	Mix, invert, reverse, silence, normalize, change gain, create, loop point, loop selection	Linear, exponential, crossfade	Gain change	No	N/A
BIAS	Peak 1.6	Mac	2 (stereo) or 1 (mono)	Yes	Convolve, ring modulate, mix, rang, Rappify, invert phase vocoder	Linear, equal power, user-definable curve	Normalize, amplitude gain envelope	Yes	Phase vocoder
Digidesign	Pro Tools Powermix 4.1	Mac	16 playback/ 2 record	Yes	Reverse, normalize, gain, invert, pitch shift, time compression/expansion	All fade types (customizable)	N/A	Yes	Traditional
Digidesign	Session 2.0	Win 95	8	No	Parametric EQ	Customizable fade in/out, crossfade	N/A	No	N/A
Innovative Quality Software	SAW 32 / SAW Plus 32	Win 95, NT	24 stereo or mono (8 tracks for SAW 32) (48-track equivalent), 16 simultaneous record	Yes	Varipitch, reverse phase and audio, paragraphic EQ, echo/delay (all real-time)	Manual and auto crossfade, linear, log, antilog, user-designable real-time mixing	Gate, compressor, limiter, normalizer	No	N/A
Innovative Quality Software	SAW Plus	Win 3.1, 95, NT	16 stereo or mono (32-track equivalent)/8 simultaneous record	Yes	Varipitch, reverse phase and audio, paragraphic EQ, echo/delay (all real-time)	Manual and auto crossfade, linear, log, antilog, user-designable real-time mixing	Gate, compressor, limiter, normalizer	No	N/A
Macromedia	Deck II 2.6.1	Mac (68k and PPC)	999 total - playback track count is scalable.	No	68k & Power Mac: Invert, reverse, normalize, group normalize. Power Mac: parametric EQ; delay; multitap delay; chorus; high-shelf, low-shelf, graphic EQ; gain (all real-time)	7 shapes for fade/ crossfade & custom	None	No	N/A
Macromedia	SoundEdit 16	Mac (68k and PPC)	Unlimited work tracks	Yes	Amplify, mix, reverse, bender (pitch envelope), delay, echo, emphasize, amplitude envelope, EQ (7 band graphic), flanger, noise gate, normalize, reverb, pitch shift, smooth, tempo (all destructive)	3 fade shapes & custom	Gain change	Yes	Sample Rate
Minnetonka Software	FastEdDIT	Win 3.1, 95, NT	4	Yes	Normalize, gain change, reverse EQ, Gearshift	Linear, exponential, crossfade	N/A	No	Traditional
Minnetonka Software	MxTrax 1.4	Win 95, NT	Hardware-dependent	Yes	None in software; DSP available via V8 Gearhead plug-in	fade-in/fade-out linear crossfades	DSP-based only	No	Traditional
SADiE	Disk Editor	Win 3.1, 95	10	Yes	Delay, chorus, flange, reverb, EQ, noise abate, stereo width, varispeed	Linear, logarithmic, hypercosine, four third, exponential, equal power, cubic, cosine, fade, crossfade	Compression, expansion, gating, dither	Yes	Traditional
SEK'D	Samplitude 24/96	PC	999	Yes	Yes	Yes	Expander, multiband dynamics	Yes	Pitch shift to intervals
SEK'D	Samplitude 4.0	Win 95, NT	Unlimited (hardware-dependent)	Yes	Delay, parametric EQ, normalizer, varispeed, room simulation, distortion	Linear, exponential, logarithmic, freehand, draw crossfade	Gate, compressor, expander, limiter, distortion	Yes	Traditional and formant preserving
SEK'D	Samplitude Studio 4.5	PC	999	Yes	Mix, invert, reverse, silence, normalize, pitch shift, room simulator	Linear, logarithmic, crossfade	Expander, compression	Yes	Yes
Sonic Foundry	Sound Forge 4.0	Win 3.1, 95, NT	2 (stereo)	Yes	Amplitude modulation, chorus, delay echo (simple and multitap), envelope, EQ (paragraphic, parametric, graphic), flange, gapper/snipper, noise gate, phaser, reverb, reverse, vibrato, wah-wah	Logarithmic, linear, crossfade, graphic in/out, exponential	Graphic dynamics, multiband dynamics	Yes	Traditional and Tempo preserving
Steinberg	ReBirth	Power Macintosh, Win 95	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Steinberg	ReCycle 1.6	Mac; Win 3.1, 95	1	No	N/A	N/A	N/A	No	N/A

Trim Silence	Sample-Rate Conversion	DSP Plug-In Formats	DC Offset	Audio-to-MIDI Conversion	Extract Timing from Audio	Special Features	Price
No	No	None	No	No	No	Real-time loop adjust; synthesis looper; rotated sums looper; freeze looper; crossfade looper; spectral phase randomization; loop auto scan	$325
No	Yes	Premiere	No	No	Threshold function	Unlimited undo/redo; nondestructive disk-based editing; import CD audio; sampler support; find/repair clicks; encode RealAudio (Internet-ready) files; batch file processing; playlists; adjust and capture loops during playback; dynamic and tape-style scrubbing	$499
Yes	Yes	AudioSuite	Yes	No	No	AudioSuite; PPC native code; edit during playback; professional digital video; loop recording; multimedia authoring tools; automation of volume, pan, mute, send; multiple edit playlists per track	$795
Yes	Yes	Digidesign	No	No	No	Automated gain and pan with graphic breakout editing; digital/analog send and returns; infinite playlists; frame-accurate sync to AVI video	$795 (AM III) $195 (Session)
Yes	Yes (real-time)	IQS	Yes	No	No	Nonlinear, nondestructive; drag-and-drop multitrack recording/editing with real-time mixing/effects processing; direct CD-burn plug-in	$700
Yes	Yes (real-time)	IQS	Yes	No	No	Nonlinear; nondestructive; drag-and-drop multitrack recording and editing with real-time mixing and effects processing	$500
Yes	Yes	Premiere	No	No	No	Quick Time chase positioning	$399
Yes	No	Waves NPP is supported	No	No	No	Shockwave Audio (SWA) authoring	$399
No	No	None	No	No	No	Ultra fast cut-and-paste editing, non-destructive editing with edit history; bundled with playlist editor and a catalog program	$199
No	No	V8 Gearhead	No	No	No	Build custom mixer with drag-and-drop mixer components; all controls and effects are real time; up to 32-channel mixer; dozens of real-time plug-ins; aux sends to external effects gear; written to run on native Digital Audio Labs V8 hardware platform; allows DSP plug-ins with V8API	$599
Yes	Yes	SAVL (Studio Audio Video Limited)	Yes (automatic)	No	No	24-bit recording and editing; 96 kHz-capable; real-time crossfades; PQ editing; price includes computer and drive	$10,995
Yes	Yes (real-time)	DirectX	Yes	No	Yes	High resolution (24-bit 96kHz) multitracking, mastering software; multiband dynamics; punch in/out real-time mixer; DirectX, CD burning "on the fly"; 32-bit floating point, dither; noise shape; draw volume/pan; fader/pan automation; real-time noise reduction; room simulator; 3-band parametric EQ	$325
Yes	Yes	None	Yes	No	Yes	Real-time DSP on all tracks with delay; pan; comp/lim/exp/gate/distortion; room simulation module; reverb; CD mastering (PQ edits)	$599
Yes	Real-time sample rate conversion/ resampling	DirectX	Yes	No	Yes	Surround, FFT Draw filter; declipping noise removal; distortion; 3 and 5-band parametric EQ; 100 levels of undo; automatic real-time loop optimizer; chase lock/SMPT/MIDI/MTC sync	$599
Yes	Yes	DirectX Media and Proprietary	Yes	No	No	Active-streaming format-file support; auto region; AVI file support; channel converter, convert to 8-bit; crossfade loop tool; DTMF/MF synthesis, insert silence; invert/flip; mute; noise gate; normalize to peak or RMS power; DirectX Audio support; sampler tool; simple synthesis; smooth/enhance; statistics tool; volume	$495
N/A	N/A	N/A	N/A	N/A	N/A	Export audio files of songs; sync to MIDI sequencers; modifications available for downloading with new drum sounds	$199
No	No	None	No	Yes	Yes	Automatically slices audio into rhythmic components and sends to MIDI sampler; saved MIDI file plays back loop; supports Roland S-760, Akai (S1000, 2000, 3000 Series), E-mu (ES132, E64, E1V), Kurzweil (K2000, 2500), Ensoniq (ASR10, EPS, EPS16+)	$199

RECORDING/EDITING SOFTWARE

Manufacturer	Product	Platform	# of Audio Tracks	Waveform Editing	Audio Effects	Fade Types	Dynamics Processing	Time Compression	Pitch-Shift Type
Steinberg	Sonic WORX Artist	Power Macintosh	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Steinberg	Sonic WORX Power Bundle	Power Macintosh	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Steinberg	Steinberg Dance Pack	Power Macintosh, Win 95	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Steinberg	Steinberg Producer Pack	Win 95	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Steinberg	Time Bandit 2.51	Mac	2 (stereo)	No	Pitch shift/time correction	N/A	N/A	Yes	Formant preserving
Steinberg	WaveLab 2.0	Win 95, NT	2	Yes	Real-time: reverb, EQ, chorus, delay, panner; Non-real-time: EQ, chorus, harmonizers, etc.	In/out, cross, user-definable curves (with presets)	Compressor, gate, limiter gate, user-definable curves	Yes	Formant preserving
Syntrillium Software	Cool Edit Pro	Win 95, NT	64	Yes	Flange, reverb, graphic EQ, parametric EQ, 3D echo	Linear, sine, logarithmic	Compressor, expander, limiter	Yes	Traditional and formant Z preserving
Voyetra	Digital Orchestrator Pro 3.0	Win 3.1, 95, NT	Hardware-dependent	Yes	Scale, normalize, crescendo/fade, reverse, compressor/limiter, gate, delay, DC offset, pitch shifting	Linear, exponential	Compressor/limiter, gate, scale, graphic EQ	Yes	Traditional

circle #139 on reader service card

Trim Silence	Sample-Rate Conversion	DSP Plug-In Formats	DC Offset	Audio-to-MIDI Conversion	Extract Timing from Audio	Special Features	Price
N/A	N/A	N/A	N/A	N/A	N/A	Unique effects include audio morphing, transform & multiply, telephone line simulator, formant shaper and wow & flutter, drumloop jungelizer, atmosphere designer, tubulator, cellular morphing and turbulence	$349
N/A	N/A	N/A	N/A	N/A	N/A	All functions are expandable and new updates include a full modularization of all real-time processes	$999
N/A	N/A	N/A	N/A	N/A	N/A	ReCycled loops can be imported into VST audio tracks; ReBirth drum and bass audio can be exported then imported into VST audio tracks	$659
N/A	N/A	N/A	N/A	N/A	N/A	Complete package for MIDI sequencing, digital audio, mastering and CD burning	$849
No	No	None	No	No	No	Batch processing; audition of audio with PowerMac	$399
Yes	Yes	DirectX Media	Yes	No	No	Six spaces of plug-in effects processing; live input processing; database; batch processing; spectral analysis; CD-burning capabilities; up to 24-bit sound-card support; sampler support	$499
Yes	Yes	DirectX Media	Yes	No	Yes	Reverb; chorus; time stretch; transposition; 3D echo; noise reduction; click and pop eliminator; high-quality sample-rate conversion	$399
Yes	Yes	None	Yes	No	No	Mix down; export to any ACM-compatible format; export to RealAudio; multiple digital audio output ports; tap tempo; MMX support	$199

circle #140 on reader service card

REFERENCE MONITORS

Manufacturer	Model	Enclosure Type	Powered/ Unpowered	Frequency Response	Sensitivity	Crossover Frequency	Woofer Size and Type
Alesis	Monitor One	Superport vented	Unpowered	45 Hz–18 kHz	88 dB	2.5 kHz	6.5" polypropylene cone
Alesis	Monitor Two	Superport vented	Unpowered	40 Hz–18 kHz	90 dB	1.5 kHz and 6 kHz, asymmetrical design	10"
Alesis	Point Seven	Superport vented	Unpowered	85 Hz–22 kHz	88 dB	2 kHz, 2nd order	5" nonwoven carbon fiber
Alesis	Point Source	Dual vented	Unpowered	80 Hz–22 kHz ±3 db	85 dB	2 kHz, 3rd order	2x5.25" nonwoven carbon fiber
Alesis	Point Surround	Acoustic suspension	Unpowered	85 Hz–22 kHz	85 dB	3.5 kHz, 1st order	2x5.25" nonwoven carbon fiber
Ambiance Acoustics	California Cube Loud-speaker System w/EQC-1 Equalizer	Vented	Unpowered	38 Hz–16.5 kHz -5 dB	91 dB	N/A	N/A
ATC	Pro 20A	Sealed	Powered	60 Hz–20 kHz	N/A	2.8 kHz	6.5"
ATC	SCM10 Pro	Sealed	Unpowered	65 Hz–20 kHz (-6 dB)	83 dB	2.8 kHz	5"
ATC	SCM100A Pro	Ported reflex	Powered	32 Hz–20 kHz (-6 dB)	N/A	380 Hz, 3.5 kHz	12"
ATC	SCM20 Pro	Sealed	Unpowered	60 Hz–20 kHz (-6 dB)	86 dB	2.8 kHz	6.5"
ATC	SCM300A Pro	Double-ported reflex	Powered	25 Hz–2C kHz	N/A	380 Hz, 3.5 kHz	2x15" superlinear
ATC	SCM50A Pro	Ported reflex	Powered	38 Hz–20 kHz (-6 dB)	N/A	380 Hz, 3.5 kHz	9"
Audix	Nile V	Bass reflex	Unpowered	40 Hz–20 kHz	87 dB	2.2 kHz	7" Kevlar
Audix	Nile X	Bass reflex	Unpowered	40 Hz–20 kHz	89 dB	2.2 kHz	2x7" Kevlar
Audix	Studio 1A	Bass reflex	Unpowered	55 Hz–18 kHz	87 dB	3 kHz	6.5" poly
Audix	Studio 3A	Bass reflex	Unpowered	48 Hz–19 kHz	91 dB	3 kHz	2x6.5" poly
Bag End	D10E-I Subwoofer	Sealed	Unpowered	8–95 Hz (w/ELF processor)	N/A	N/A	2x10" EL-10 woofers
Bag End	Infrasub 18 Subwoofer	Sealed	Powered	8–95 Hz	N/A	N/A	18" EL-18P LF woofer
Bag End	MM-8 Near Field Monitor	Ported	Unpowered	100 Hz–20 kHz	84 dB	Time Align EQ filter @ 2.9 kHz	8" LF
Bag End	MM-8H	Ported	Unpowered	100 Hz–20 kHz	84 dB	Time Align EQ filter @ 2.9 kHz	8" LF
Barbetta	Genesis 10	Ported reflex	Powered	39 Hz–22 kHz (±1 dB)	N/A	3,240 Hz	10" mineral filled polypropylene
Barbetta	Genesis 8	Ported reflex	Powered	48 Hz–20 kHz (±1 dB)	N/A	3,245 Hz	8" polymer treated
Benson Audio Labs	Studiostat 8.2	Vented	Unpowered	39 Hz–21 kHz (-6 dB)	92 dB	1.6 kHz	8" cast frame, 2" voice coil
Diamond Audio	S2 PRO-MEDIA 1060 Powered Subwoofer	Dual-port	Powered	50–140 Hz	N/A	12 dB/octave continuously variable from 70 to 140 Hz	6.5" long-throw neodymium DVC subwoofer
Diamond Audio	S2 PRO-MEDIA 1100 Powered Subwoofer	Dual-port vented	Powered	30–14C Hz	N/A	12 dB/octave continuously variable from 70 to 140 Hz	8" long-throw neodymium DVC subwoofer
Diamond Audio	S2 PRO-MEDIA 4060 System	Dual-port vented	Powered	60 Hz–20 kHz (±3 dB)	N/A	120 Hz: 12 dB/octave active (HP and LP); 3.5 kHz: 12/6 dB/octave passive (HP/LP)	6.5" long-throw neodymium DVC subwoofer
Diamond Audio	S2 PRO-MEDIA 4100 System	Dual-port vented	Powered	50 Hz–20 kHz (±3 dB)	N/A	120 Hz: 12 dB/octave active (HP and LP); 3.5 kHz: 12/6 dB/octave passive (HP/LP)	8" long-throw neodymium DVC subwoofer
Digital Designs	DD161d	Vented	Unpowered	45 Hz–20 kHz	90 dB	1.8 kHz	6.5" composite-filled poly
Digital Designs	DD261d	Vented	Unpowered	45 Hz–20 kHz	91 dB	1.8 kHz	6.5" composite-filled poly
Digital Designs	M6	Vented	Unpowered	45 Hz–20 kHz	90 dB	3.5 kHz	6.5" composite-filled poly
Dynaudio Acoustics	BM15	Reflex	Unpowered	43 Hz–20 kHz	88 dB	2.7 kHz	9.5" polypropylene cone with 4" voice coil
Dynaudio Acoustics	BM15A	Reflex	Powered	40 Hz–21 kHz	N/A	1.7 kHz	9.5" polypropylene cone with 4" voice coil
Dynaudio Acoustics	BM5	Reflex	Unpowered	55 Hz–29 kHz	87 dB	5.2 kHz	6.5" polypropylene cone with 3" voice coil

Midrange Size and Type	Tweeter Size and Type	Magnetic Shielding	Cabinet Dimensions (HxWxD)	Weight (lbs.)	Notes	Price (per pair)
N/A	1" silk dome	No	15"x9.25"x8.5"	5	5-way binding posts	$399
5"	1" silk dome	No	14"x20"x14"	34	Midfield reference monitor	$699
N/A	1" silk dome	Yes	7.1"x11.2"x7.25"	11	Adjustable ports if subwoofer is used	$299
N/A	1" silk dome	Yes	18"x7.25"x9.25"	16	Gold plated 5-way binding post	$398
N/A	1" silk dome	Yes	11.25"x10"x8"	17	Gold plated 5-way binding post	$449
4 full-range 4.5" treated paper cones/ rubber surround	N/A	No	13.6"x13.6"x13.6"	Cabinet: 30; Equalizer: 3	Price includes equalizer	Starting at $1,395
N/A	1"	No	17.6"x10.6"x12.2"	66		$4,595
1.75" soft dome	1" soft dome	Optional	15"x7.1"x10"	22		$1,650
3" soft dome	1" soft dome	Optional	32.8"x15.7"x22.29"	143		$9,995
3" soft dome	1" soft dome	Optional	17.3"x9.8"x12.4"	50.6		$2,500
3" soft dome	1.25" soft dome	Optional	34.8"x36.4"x18.7"	308		$20,650
3" soft dome	1" soft dome	Optional	28.2"x13.8"x18.8"	107.8		$8,995
N/A	1" cloth dome	No	15"x9.5"x11"	24		$1,495
N/A	1" cloth dome	No	22"x10"x13.5"	45		$1,995
N/A	1" cloth dome	Optional	13"x9"x10"	18		$599
N/A	1" cloth dome	Optional	19"x10"x11"	29		$799
N/A	N/A	No	13"x22.5"x13"	50	Studio subwoofer for use with ELF processor	$710 each
N/A	N/A	No	23.5"x21.25"x18.25"	92	Time Align subwoofer with 8 Hz response; 400W power amp built in	$1,495 each
N/A	1.75" aluminum compression HF	No	17.5"x12.25"x8"	31	For use with ELF subwoofer, includes EQ and polarity switch	$2,480
N/A	1.75" aluminum compression HF	No	17.5"x12.25"x8"	31	Includes cloth grille (no switches)	$2,264
N/A	1" titanium dome	Yes	14.5"x12"x17"	47	Biamplified, shielded	$1,595
N/A	1" titanium dome	Yes	14.5"x10.75"x11"	36	Biamplified, shielded	$1,395
N/A	5"x5" electrostatic element	Yes	17.75"x11"x12"	34	Features optimum listening-plane indicator	$1,399
N/A	N/A	Yes	11.5"x8.5"x14.5"	20	Stand-alone powered subwoofer connects to any line-level or amplified output via RCA phono jacks (line level) or push-type speaker connectors (amplified levels); variable level control adjusts bass output level; polarity (phase) switch for ideal placement	$289
N/A	N/A	Yes	16.5"x8.5"x17"	30	Stand-alone powered subwoofer connects to any line-level or amplified output via RCA phono jacks (line level) or push-type speaker connectors (amplified levels); variable level control adjusts bass output level; polarity (phase) switch for ideal placement	$399
4.5" neodymium (midbass)	0.5" poly-aluminum composite dome tweeter	Yes	Sub: 11.5"x8.5"x14.5"; satellite: 7.25"x5"x4.5"	36	4-pc. satellite/subwoofer system with two 4.5" 2-way die-cast aluminum speakers; S2 DS1 solid-rubber desktop speaker stands; mic input (600Ω) with separate level control mixable with either of the selected inputs; S2 TP-1 included for use with existing preamps	$499
4.5" neodymium (midbass)	0.5" poly-aluminum composite dome tweeter	Yes	Sub: 16.5"x8.5"x17"; satellite: 7.25"x5"x4.5"	48	4-pc. satellite/subwoofer system with two 4.5" 2-way die-cast aluminum speakers; S2 DS1 solid-rubber desktop speaker stands; mic input (600Ω) with separate level control mixable with either of the selected inputs; S2 TP-1 included for use with existing preamps	$649
N/A	1" aluminum dome	Yes	9"x13.5"x12"	19.5	Biwired, 2-tiered baffle	$399
N/A	1" aluminum dome	Yes	10"x18.5"x16"	34	Biwired, 2-tiered baffle	$250
N/A	0.75"	Optional	9"x13.5"x12"	18.5		$219
N/A	1" soft dome, fluid cooled	Yes	17"x11"x13"	27		$1,529
N/A	1" soft dome, fluid cooled voice coil	Yes	18"x11"x15"	42		$3,599
N/A	1" soft dome using neodymium magnet	Yes	12"x8"x10"	13		$799

REFERENCE MONITORS

Manufacturer	Model	Enclosure Type	Powered/ Unpowered	Frequency Response	Sensitivity	Crossover Frequency	Woofer Size and Type
Dynaudio Acoustics	BM6	Reflex	Unpowered	43 Hz–20 kHz	86 dB	3.1 kHz	6.5" polypropylene cone with 3" voice coil
Dynaudio Acoustics	BM6A	Reflex	Powered	42 Hz–21 kHz	N/A	2.2 kHz	6.5" polypropylene cone with 3" voice coil
Dynaudio Acoustics	M1	Reflex	Unpowered	50 Hz–20 kHz	88 dB	N/A	2x4" polypropylene cone with 3" voice coil
Dynaudio Acoustics	M1.5	Reflex	Unpowered	40 Hz–20 kHz	88 dB	N/A	2x6.5" polypropylene cone with 3" voice coil . Fluid cooled
Dynaudio Acoustics	M2	Reflex	Unpowered	45 Hz–20 kHz	87 dB	N/A	2x6.5" polypropylene cone with 2" voice coil
Dynaudio Acoustics	M3	Reflex	Unpowered	40 Hz–20 kHz	88 dB	N/A	2x12" polypropylene cone with 4" voice coil. Fluid cooled
Eastern Acoustic Works	MM12S	2x full range satellites w/2-channel subwoofer	Unpowered	45 Hz–20 kHz (±3 dB)	89 dB	N/A	5.25" cone per channel
Eastern Acoustic Works	MS103	Vented	Unpowered	40 Hz–19 kHz (±3 dB)	95 dB	N/A	15" cone
Eastern Acoustic Works	MS20	Vented	Unpowered	50 Hz–20 kHz (±3 dB)	89 dB	N/A	6.5" polypropylene cone
Eastern Acoustic Works	MS30C	Vented	Unpowered	45 Hz–19 kHz (±3 dB)	90 dB	N/A	8" cone
Eastern Acoustic Works	MS63	Vented	Unpowered	50 Hz–19 kHz (±3 dB)	95 dB	N/A	12" cone
Electro-Voice	MS802	Vented	Unpowered	45 Hz–18 kHz (±3 dB)	91 dB	2 kHz	8"
Electro-Voice	S-60	Sealed	Unpowered	60 Hz–18 kHz	88 dB	2.5 kHz	6.5"
Electro-Voice	S-80A	Vented	Unpowered	80 Hz–15 kHz	91 dB	2 kHz	8"
Electro-Voice	Sentry 100A	Vented	Unpowered	45 Hz–18 kHz	91 dB	2 kHz	8"
Electro-Voice	Sentry 500	Vented	Unpowered	40 Hz–18 kHz (±3 dB)	96 dB	1.5 kHz	12" extended voice coil
Event Electronics	20/20 Direct Field Monitor	Ported	Unpowered	50 Hz–20 kHz, (±2 dB)	88 dB	2.2 kHz, 2nd-order	8" mineral-filled polypropylene cone
Event Electronics	20/20bas Biamplified System	Ported	Powered	38 Hz–20 kHz, ± 2 dB (-3 dB at 35 Hz)	N/A	2.6 kHz active	8" mineral-filled polypropylene cone
Event Electronics	20/20p Powered Direct Field Monitor System	Ported	Powered	38 Hz–20 kHz, ± 2 dB (-3 dB at 35 Hz)	N/A	2.2 kHz, 2nd-order	8" mineral-filled polypropylene cone
Event Electronics	Tria Triamplified Monitor System	Ported	Powered	38 Hz–20 kHz, ± 2 dB (-3 dB at 35 Hz)	N/A	VLF: 60 Hz, satellite: 2.9 kHz active	VLF: 8" mineral-filled polypropylene cone; satellite: 5.25" mineral-filled polypropylene cone
Fostex	6301B	Sealed	Powered	80 Hz–13 kHz	84 dB	N/A	N/A
Genelec	1029A	Ported	Powered	68 Hz–18 kHz (±2.5 dB)	110 dB	Electronic (3.3 kHz)	5" coated cone
Genelec	1030AP	Ported	Powered	52 Hz–18 kHz (±2.5 dB)	115 dB	Electronic (3.5 kHz)	6.5" polymer composite
Genelec	1031A	Ported	Powered	48 Hz–20 kHz (±2.5 dB)	120 dB	Electronic (2.5 kHz)	8" polymer composite

Midrange Size and Type	Tweeter Size and Type	Magnetic Shielding	Cabinet Dimensions (HxWxD)	Weight (lbs.)	Notes	Price (per pair)
N/A	1" soft dome, fluid cooled	Yes	13"x8"x10"	15		$1,169
N/A	1" soft dome, fluid cooled	Yes	13"x8"x13"	24		$2,599
N/A	1" soft dome, fluid cooled	Yes	8"x18"x12"	31	Designed specifically for console-top use	$3,199
N/A	1" soft dome, fluid cooled	Yes	17"x12"x16"	48	Designed for mid-field or console-top use	$4,199
3" soft dome, fluid cooled	1" soft dome, fluid cooled	Yes	13"x27"x20"	77	Mid-field main monitor	$6,579
2x6" polypropylene cone with 3" voice coil. Fluid cooled	1" soft dome, fluid cooled	Yes	31"x22"x20"	143	Main monitor	$12,129
N/A	0.75" soft dome per channel	Satellites: yes	Full Range Satellites: 10.75"x6.38"x6"	91	2-channel subwoofer contains 2-channel passive crossover; total system can be powered by single 2-channel amplifier	(2-channel system): $1,792
7" carbon fiber cone	3" dome and waveguide	No	20"x24"x20.5"	100		$3,178
N/A	1" soft dome	No	14.75"x9.5"x9"	17.3		$704
N/A	1" soft dome	No	14"x17"x12.25"	30		$824
7" carbon fiber cone	3" dome and waveguide	No	16"x24"x12.5"	80		$2,560
N/A	1" superdome	No	17.25"x12"x11.125"	27		$684
N/A	1" tweeter with dispersion-controlling Direktor	Yes	13.8"x8.7"x8.4"	15.4		$474
N/A	1.25" tweeter with dispersion-controlling Direktor	Yes	15.8"x10.7"x8.5"	16.7		$568
N/A	Superdome (high-power)	No	7.25"x12"x11.13"	28		$918
N/A	1" superdome coupled to dispersion control device	No	23.75"x27"x13"	70	Step-down mode allows operation down to 25 Hz	$1,610
N/A	1" ferrofluid-cooled silk dome	Yes	14.75"x10.25"x 11.75"	22	Front-mounted large-diameter low-air restriction port; 5-way binding posts	$399
N/A	1" ferrofluid-cooled silk dome	Yes	14.75"x10.25"x 11.75"	32	Cont. var. low-freq., high-freq., and trim controls; subsonic filter -3 dB @ 30 Hz; RF protection; over-temperature protection; gold combination 1/4"/XLR bal./unbal. connectors	$999
N/A	1" ferrofluid-cooled silk dome	Yes	14.75"x10.25"x 11.75"	33 (powered cabinet), 22 (passive cabinet)	Cont. var. low-freq., high-freq., and input-level; subsonic filter -3 dB @ 30 Hz; RF protection; turn-on transit protection; gold combination 1/4"/XLR bal./unbal. input connectors; both amps contained in "P" unit; other amp drives 20/20	$599
N/A	1" neodymium ferrofluid-cooled silk dome	Yes	VLF: 18.5"x12"x11", Satellite: 10.5"x 7.5"x9"	VLF: 34, Satellite: 11	3-way system with two biamped satellites and one very low-frequency station; cont. var. low-freq., high-freq.; subsonic filter -3 dB @ 30 Hz; RF protection; output-current limiting; power-on/over-temperature protection; gold combination 1/4"/XLR bal./unbal. connectors	$849 (3-piece system)
4" full range	N/A	Yes	6.5"x4"x5"	7	Amplifier may be used independently	$418
N/A	0.75" metal dome	Yes	10"x6"x7.25"	12.5	XLR line-level inputs; power-on indicator; input-sensitivity controls; amp/driver-protection; multistage phase-compensated electronic crossovers; EQ controls	$1,070
N/A	0.75" metal dome	Optional	12.5"x8"x9.5"	15	XLR line-level inputs; power-on indicator; input-sensitivity controls; amp/driver-protection; multistage phase-compensated electronic crossovers; EQ controls	$2,098
N/A	1" metal dome	Optional	15.5"x10"x11.5"	26	XLR line-level inputs; input-sensitivity controls; amplifier/driver-protection; clip indicators; multistage phase-compensated electronic crossovers; EQ controls; available in black paint (1031AP)	$3,998

REFERENCE MONITORS

Manufacturer	Model	Enclosure Type	Powered/ Unpowered	Frequency Response	Sensitivity	Crossover Frequency	Woofer Size and Type
Genelec	1032A	Ported	Powered	42 Hz–20 kHz (±2.5 dB)	124 dB	Electronic (1.8 kHz)	10" polymer composite
Genelec	1037B	Ported	Powered	37 Hz–20 kHz (±2.5 dB)	127 dB	Electronic (420 Hz, 3.2 kHz)	12" cone
Genelec	1091A Active Subwoofer	Ported	Powered	38–85 Hz (±2.5 dB)	103 dB	Electronic (85 Hz)	8" cone
Genelec	1092A	Ported	Powered	33–85 Hz (±2.5 dB)	115 dB	Electronic (85 Hz)	Dual 8" cones
Genelec	1094A Active Subwoofer	Ported	Powered	29–85 Hz (±2.5 dB)	120 dB	Electronic (85 Hz)	15"
Genelec	S30C	Ported	Powered	44 Hz–22 kHz (±2.5 dB)	124 dB	Electronic (420 Hz, 4 kHz)	8" cone
Hafler	TRM8	Bass reflex	Powered	45 Hz–21 kHz ±2 dB	N/A	2.5 kHz	8" polypropylene cone
Hot House	ASB 110 Active Sub-Bass System	6th-order reflex	Powered	20 Hz–110 Hz	N/A	50–110 Hz	10" Hot House HV10
Hot House	ASB 112 Active Sub-Bass System	6th-order reflex	Powered	20–110 Hz	N/A	50–110 Hz	12" Hot House HV12
Independent Audio	ATC SCM10 PRO	Seal	Unpowered	65 Hz–20 kHz	80 dB @ 1w @ 1m	2.8 kHz	5"
Independent Audio	ATC SCM100A PRO	Ported	Powered	32 Hz–20 kHz	N/A	380 Hz, 3.5 kHz	12"
Independent Audio	ATC SCM150A PRO	Ported	Powered	25 Hz–20 kHz	N/A	380 Hz, 3.5 kHz	15"
Independent Audio	ATC SCM20A PRO	Seal	Powered	60 Hz–20 kHz	N/A	2.8 kHz	6.5"
Independent Audio	ATC SCM20s1 PRO	Seal	Unpowered	60 Hz–20 kHz	83 dB @ 1w @ 1m	2.8 kHz	6.5"
Independent Audio	ATC SCM50A PRO	Ported	Powered	38 Hz–20 kHz	N/A	380 Hz, 3.5 kHz	9"
JBL	Control 1	Bass reflex	Unpowered	70 Hz–20 kHz (-10 dB)	87 dB	6 kHz	5 1/4"
JBL	4206	Bass reflex	Unpowered	65 Hz–20 kHz (±2 dB)	87 dB	2.8 kHz	6" woofer
JBL	4208	Bass reflex	Unpowered	60 Hz–20 kHz (±2 dB)	89 dB	2.8 kHz	8"
JBL	4408A	Bass reflex	Unpowered	50 Hz–20 kHz (±2 dB)	89 dB	2.5 kHz	8" cast frame
JBL	4410A	Bass reflex	Unpowered	45 Hz–20 kHz (±2 dB)	90 dB	900 Hz, 4 kHz	10" cast frame
JBL	4412A	Bass reflex	Unpowered	45 Hz–20 kHz (±2 dB)	89 dB	850 Hz, 4 kHz	12" cast frame
JBL	4425	Bass reflex	Unpowered	40 Hz–16 kHz (±3 dB)	91 dB	1.2 kHz	12" high-power
JBL	6208	Vented bass reflex	Powered	60 Hz–20 kHz (±2 dB)	89 dB	2.8 kHz	8"
Korg	RM8	Ported	Unpowered	48 Hz–20 kHz (±3 dB)	88 dB	2.8 kHz	7" copolymer with butyl surround
KRK	Exposé E7	Tuned port	Powered	54 Hz–20 kHz	91 dB	2 kHz	7" Kevlar
KRK	Exposé E8	Tuned port	Powered	45 Hz–20 kHz	92 dB	1.7 kHz	8" Kevlar
KRK	K-Rok/S	Tuned port	Unpowered	57 Hz–19 kHz (±3 dB)	92 dB	2.5 kHz	7" latex-coated, long stroke
KRK	M13000B	Tuned port	Unpowered	36 Hz–20 kHz (±3 dB)	90 dB (bi- or triamp)	400 Hz, 4 kHz	12" polyglass
KRK	M6000/S	Tuned port	Unpowered	62 Hz–20 kHz	89 dB	2.4 kHz	6" polyglass

Midrange Size and Type	Tweeter Size and Type	Magnetic Shielding	Cabinet Dimensions (HxWxD)	Weight (lbs.)	Notes	Price (per pair)
N/A	1" metal dome	Optional	19.5"x12.625"x11.5"	44	XLR line-level inputs; input-sensitivity controls; amplifier/driver-protection; clip indicators; multistage phase-compensated electronic crossover; EQ controls	$4,998
5" Genelec-designed cone	1" metal dome	Optional	26.75"x15.75"x15"	82	XLR line-level inputs; input-sensitivity controls; amplifier/driver-protection; clip indicators; multistage phase-compensated electronic crossover; EQ controls	$9,498
N/A	N/A	No	20"x10"x9"	22.5	XLR line-level inputs; input-sensitivity controls; amplifier/driver-protection; clip indicators; multistage phase-compensated electronic crossover; bass roll-off, room response EQ; matched for use with 1029A (pair)	$680 each
N/A	N/A	Optional	24.25"x12.5"x20"	66	XLR line-level inputs; input-sensitivity controls; amplifier/driver-protection; clip indicators; multistage phase-compensated electronic crossover; EQ controls; includes left-center-right in/outs and LFE input	$2,150 each
N/A	N/A	No	29"x18.5"x24.5"	110	XLR line-level inputs; input-sensitivity controls; amplifier/driver-protection; clip indicators; multistage phase-compensated electronic crossover; EQ controls; includes left-center-right in/outs and LFE input	$3,699 each
4" cone	9x65 mm ribbon tweeter	Optional	19.5"x12.625"x11.5"	44	XLR line-level inputs; power-on indicator; input-sensitivity controls; amp/driver-protection; multistage phase-compensated electronic crossover; EQ controls	$5,598
N/A	1" soft dome	Yes	15 7/16"x10.25"x13"	35		$2,400
N/A	N/A	No	20"x18"x18"	98	Stereo crossover w/ XLR & RCA bal./unbal. I/O; high- and lowpass outputs; sensitivity/level matching, low frequency contour and 180 degree phase controls	$5,998
N/A	N/A	No	20"x18"x24"	110	Stereo crossover w/ XLR & RCA bal./unbal. I/O; high- and low-pass outputs; sensitivity/level matching, low frequency contour and 180 degree phase controls	$7,998
N/A	1"	Yes	15"x7.1"x10"	22	Super linear magnet	$1,650
3"	1"	Yes	32.8"x15.7"x22.9"	143	Super linear magnets	$9,995
3"	1"	Yes	34.8"x19.6"x25.5"	165	Super linear magnets	$11,650
N/A	1"	Yes	17.6"x10.6"x12.2"	66	Cast aluminum cabinet	$4,595
N/A	1"	Yes	17.3"x9.8"x12.4"	50	Super linear magnet	$2,500
3"	1"	Yes	28.2"x13.8"x18.8"	107	Super linear magnets	$8,995
N/A	0.75" polycarbonate	Yes	9.25"x6.25"x5.625"	4	Multimedia brackets and adapters available	$292
N/A	1" titanium	Yes	15.375"x9"x9.5"	15	Multiradial baffle	$388
N/A	1" titanium	Yes	17.75"x11.25"x9.5"	20.5	Multiradial baffle	$510
N/A	1" pure titanium dome	No	17.25 x11.625"x12"	26	Mirror image pairs	$674
5" cast frame	1" pure titanium dome	No	23.5"x14.25"x11.25"	43	Mirror image pairs	$934
5" cast frame	1" pure titanium dome	No	14.25"x23.5"x11.25"	47	Mirror image pairs in horizontal configuration	$1,402
N/A	2" compression driver on 100°x100° horn	No	25"x16"x14.75"	57		$2,388
N/A	1" gold/titanium hybrid dome	Yes	17.75"x11.25"x9.5"	30	Biamplified with multiradial baffle	$948
N/A	1" Kortel soft dome	Yes	8.5"x15"x10.5"	16		$420
N/A	1" Kevlar	Optional	15"x13.25"x12"	44		$2,995/$3,195 w/shielding
N/A	1" Kevlar	Optional	17"x14.75"x14.5"	54		$3,995/$4,195 w/shielding
N/A	1" silk dome	Optional	14"x12"x9.75"	36		$495 ($645 shielded)
5" Kevlar	1" Kevlar	No	29"x16"x16.75"	180		$3,495
N/A	1" Kevlar	Optional	13"x9"x10"	36		$775 ($925 shielded)

REFERENCE MONITORS

Manufacturer	Model	Enclosure Type	Powered/ Unpowered	Frequency Response	Sensitivity	Crossover Frequency	Woofer Size and Type
KRK	M7000B/BS	Tuned port	Unpowered	50 Hz–20 kHz	91 dB	3 kHz	7" Kevlar
KRK	M9000B/S	Tuned port	Unpowered	45 Hz–20 kHz	92 dB	2.9 kHz	9" composite
KRK	Rokit Personal Shielded Monitor	Tuned port	Unpowered	69 Hz–24 kHz (±2 dB)	91 dB	1.5 kHz	6.5" Long stroke polyvinyl
Mackie Designs	HR824	Sealed	Powered	39 Hz–22 kHz (±1.5 dB)	>120 dB 1W / 1m	2 kHz	8.75" mineral-filled polypropylene cone
Meyer Sound	HD-1	Tuned bass reflex	Powered	32 Hz–22 kHz	N/A	N/A	8" cone driver (bass reflex)
Meyer Sound	HM-1S	Tuned bass reflex	Powered	42 Hz–20 kHz	N/A	3 kHz	7" graphite cone driver
Paradigm Reference	Active L/R	Bass reflex	Powered	38 Hz–22 kHz (±1 dB)	N/A	1.5 kHz	2x6.5" mica-polymer cone
Paradigm Reference	Active/20	Bass reflex	Powered	35 Hz–22 kHz (±1 dB)	N/A	1.5 kHz	6.5" mica-polymer cone
Paradigm Reference	Mini Monitor	Bass reflex	Unpowered	43 Hz–20 kHz (±2 dB)	89 dB	1.8 kHz	6.5" injection molded copolymer polypropylene
Paradigm Reference	Monitor 3	Bass reflex	Unpowered	36 Hz–20 kHz (±2 dB)	89 dB	1.8 kHz	6.5" copolymer polypropylene
Paradigm Reference	Studio/20	Bass reflex	Unpowered	40 Hz–22 kHz (±2 dB)	89 dB	1.5 kHz	6.5" mica-polymer cone
Platinum Audio	Session-1 Monitors	Tuned port	Unpowered	40 Hz–20 kHz (±2 dB)	84 dB	2.5 kHz	Platinum 5" aluminum diaphragm/butyl surround
PMC	BB-5	Transmission line	Powered	17 Hz–25 kHz	91 dB	380 Hz, 3.8 kHz	15" radial driver
PMC	IB-1	Transmission line	Unpowered	25 Hz–25 kHz	91 dB	380 Hz, 3.8 kHz	10" flat carbon fiber Nomey piston driver
PMC	LB-1	Transmission line	Powered (unpowered available)	35 Hz–25 kHz	87 dB	2.5 kHz	5" 1 kW pulse, 3" voice coil
PMC	MB-1	Transmission line	Unpowered	20 Hz–25 kHz	91 dB	380 Hz, 3.8 kHz	12" radial driver
PMC	TB-1S	Transmission line	Powered (unpowered avail.)	40 Hz–25 kHz	90 dB	3 kHz	6.5" doped-cast magnesium
PMC	XB-1 Subwoofer	Transmission line	Powered (unpowered avail.)	25–200 Hz	90 dB	100 Hz	Die-cast 10" dual voice coil
Posthorn Recordings	Waveform Mach 17	Sealed	Unpowered	17 Hz–22 kHz	89 dB	120 Hz, 7.6 kHz	2x12" cone
Quested/Audio Independence	H108	Bass reflex	Unpowered	55 Hz–18 kHz	90.5 dB	N/A	8" bass driver paper cone
Quested/Audio Independence	H208	Bass reflex	Unpowered	55 Hz–18 kHz (±2 dB)	92 dB	N/A	2x8" bass drivers
Quested/Audio Independence	VS2108	Bass reflex	Powered	55 Hz–18 kHz (±2 dB)	N/A	N/A	8" bass cone
Quested/Audio Independence	VS2205	Bass reflex	Powered	75 Hz–19 kHz (±2 dB)	N/A	N/A	2x5" bass cone paper cone
Shedworks	Bath Camera	Sealed	Unpowered	40 Hz–20 kHz	84 dB	280 Hz, 4 kHz	6.5" paper cone, rubber surround
Shedworks	TLC-3	Sealed	Unpowered	60 Hz–20 kHz (±3 dB)	84 dB	280 Hz, 4 KHz	6.5" paper-cone foam surround
Soundtech	ST5T	Ported	Unpowered	80 Hz–20 kHz	93 dB	4.5 kHz	5" polypropylene
Soundtech	ST8T	Ported	Unpowered	55 Hz–20 kHz	95 dB	3 kHz	8" impregnated paper
Spendor	SA200	Bass reflex	Powered	55 Hz–23 kHz (±3 dB)	100 dB	3.5 kHz	6"
Spendor	SA300	Bass reflex	Powered	44 Hz–23 kHz (±3 dB)	100 dB	3 kHz	8"
Spendor	SA500	Bass reflex	Powered	35 Hz–23 kHz (±2.5 dB)	100 dB	500 Hz, 3.5 kHz	10"

Midrange Size and Type	Tweeter Size and Type	Magnetic Shielding	Cabinet Dimensions (HxWxD)	Weight (lbs.)	Notes	Price (per pair)
N/A	1" Kevlar	Optional	14.25"x11"x11"	50		$1,175 ($1,325 shielded)
N/A	1" Kevlar	Optional	17"x14"x14.25"	88		$1,995 ($2,195 shielded)
N/A	1" Silk dome	Yes	12.5"x10.5"x8"	14.5		$329
N/A	1" Aluminium-alloy ferrofluid-cooled coil	Yes (tweeter)	15.75"x10"x10.5"	32	Rear mass-loaded passive radiator	$1,498
N/A	1" silk dome	Optional (direct radiating)	16"x12"x14" (+2" for amp chassis)	51		$5,520
N/A	1" soft-dome tweeter	Yes	11.5"x8.9"x9.7"	11	PS-1 Power Supply ($400/e); Sub-woofer ($650/e)	$2,600
N/A	1" pure aluminum dome	No	21"x8"x11.5"	88	Each speaker biamplified: 110 W/woofer pair, 50 W/tweeter	$1,850
N/A	1" pure aluminum dome	No	14"x8.25"x11"	70	Each speaker biamplified: 110 W/woofer, 50 W/tweeter	$1,600
N/A	N/A	Yes	13"x8"x10.875"	31		$329
N/A	1" titanium dome	No	20"x9.25"x11.375"	48		$399
N/A	1" pure aluminum dome	Yes	14"x8.25"x11"	40		$650
N/A	Platinum 1-piece 1" aluminum dome/coil bobbin	Optional	13.5"x8"x13"	26.5	True Grit black; 2-way crossover; nominal impedance 8Ω	$1,295
3" fabric dome	Silk soft dome with double chamber	Optional	41"x17"x31"	160	Available only as fully powered active system (includes all electronics and cables)	$49,950
3" fabric dome	Silk soft dome with double chamber	Optional	30"x13"x21"	65		$4,400
N/A	Silk soft dome with double chamber	Optional	21"x7"x10.5"	Powered: 27; unpowered: 17		$3,660 ($2,160 unpowered)
3" fabric dome	Silk soft dome with double chamber	Optional	34"x15"x21"	105	Available as fully active system (includes all electronics and cables)	$8,950
N/A	Aluminum alloy phase shield ferrofluid	Optional	15.75"x7.5"x11.75"	Powered: 30; unpowered: 20		$2,420 ($920 unpowered)
N/A	N/A	No	31"x17"x10.5"	Powered: 71; unpowered: 60		$2,000 ($1,250 unpowered)
5" cone	3" cone	No	24"x24"x43"	110	Triamplified	$6,000
N/A	1.125" high frequency soft dome	Yes	15.75"x9.5"x9.375"	26.5		$2,030
3" midrange soft dome	1.125" high frequency soft dome	Yes	18.25"x21.25"x14"	72.5		$5,318
N/A	1.125" high frequency soft dome	Yes	16"x13.5"x13.5"	48.5		$4,730
N/A	1.125" high frequency soft dome	Yes	10.5"x13.5"x11.25"	29		$3,498
5.25" paper cone, rubber surround	0.75" phase correct soft dome	No	11"x8.5"x9.5"	34	Downfiring woofer; phase correct crossovers; Zolatone finish; gold 5-way binding posts	$899
5.25" paper cone, rubber surround	0.75" phase correct soft dome	Optional (dome)	8.5"x9.5"x9.5"	17	Downfiring woofer; phase correct crossovers; Zolatone finish; gold 5-way binding posts	$899
N/A	1" polycarbonate	No	9.25"x6.25"x5.5"	5.25	Mounting brackets available	$199.90
N/A	1" linen	No	15.625"x10"x15.8"	13.2	Mounting brackets available	$399.90
N/A	3"	Yes	15"x8.5"x10"	26		$2,495
N/A	3"	Yes	18.5"x10"x11"	37.5		$3,695
6"	3"	Yes	25"x12.5"x16"	97		$7,995

REFERENCE MONITORS

Manufacturer	Model	Enclosure Type	Powered/ Unpowered	Frequency Response	Sensitivity	Crossover Frequency	Woofer Size and Type
Spirit	Absolute Two	Front vented	Unpowered	45 Hz–20 kHz	90 dB	2.5 kHz	6.5"
Spirit	Absolute Zero	Rear vented	Unpowered	55 Hz–18 kHz (+1 dB/-3 dB)	89 dB	2.5 kHz	6.5"
Sumiko	Sonus Faber Concertino	Bass reflex	Unpowered	55 Hz–20 kHz (±3 dB)	86 dB	N/A	5.5 PP-treated cone
Sumiko	Sonus Faber Concerto	Bass reflex	Unpowered	45 Hz–20 kHz (±3 dB)	87 dB	N/A	7" cellulose carbonium 7 cone
Sumiko	Sonus Faber Concerto Grand Piano	Sealed	Unpowered	40 Hz–20 kHz (±3 dB)	87 dB	N/A	7" copper ring system cellulose carbonium 7 cone; 7" acrilate carbonium 7 cone passive radiator
Sumiko	Sonus Faber Solo	Sealed	Unpowered	45 Hz–20, kHz (±3 dB)	86 dB	N/A	2x7" cellulose carbonium 7 cone
Sumiko	Vienna Acoustics Bach	Bass reflex	Unpowered	38 Hz–20 kHz (±3 dB)	90 dB	N/A	7" paper cone
Sumiko	Vienna Acoustics Beethoven	Bass reflex	Unpowered	30 Hz–22 kHz (±3 dB)	91 dB	N/A	2x5.5" XPP cone; 2x7" XPP "spider" cone
Sumiko	Vienna Acoustics Centerspeaker	Bass reflex	Unpowered	42 Hz–20 kHz (±3 dB)	89 dB	N/A	5.5" XPP cone
Sumiko	Vienna Acoustics Haydn	Bass reflex	Unpowered	42 Hz–20 kHz (±3 dB)	89 dB	N/A	5.5" XPP cone
Sumiko	Vienna Acoustics Mozart	Bass reflex	Unpowered	35 Hz–22 kHz (±3 dB)	90 dB	N/A	2x5.5" XPP cone
Tannoy	PBM 6.5 LM	Rear ported	Powered	55 Hz–20 kHz (±3 dB)	91 dB	2.3 kHz	6.5" injection-moulded cone with nitrile rubber surround
Tannoy	PBM 6.5II	Rear ported	Unpowered	55 Hz–20 kHz (±3 dB)	91 dB	2.3 kHz	6.5" injection-moulded cone with nitrile rubber surround
Tannoy	PBM 8 LM	Rear ported	Powered	45 Hz–25 kHz (±3 dB)	92 dB	1.9 kHz	8" injection-moulded cone with nitrile rubber surround
Tannoy	PBM 8II	Rear ported	Unpowered	45 Hz–25 kHz (±3 dB)	92 dB	1.9 kHz	8" injection-moulded cone with nitrile rubber surround
Tannoy	PS115	Vented	Powered	33–130 Hz	N/A	130 Hz	15" direct radiating
Tannoy	System 600	Front ported	Unpowered	52 Hz–20 kHz (±3 dB)	90 dB	1.8 kHz	6" dual concentric
Tannoy	System 800	Front ported	Unpowered	47 Hz–20 kHz (±3 dB)	92 dB	1.8 kHz	N/A
Tannoy	Tannoy SBM	Vented	Unpowered	45 Hz–20 kHz (±3 dB)	90 dB	3 kHz	6.5" injection-moulded with doped foam surround
Yamaha	MS20S	Bass reflex	Powered	70 Hz–15 kHz	88 dB	3.5 kHz	4.67" cone speaker
Yamaha	MS60S	Bass reflex	Powered	20 Hz–20 kHz	91 dB	3 kHz	8" cone speaker
Yamaha	NS10M Studio	Sealed	Unpowered	60 Hz–20 kHz	90 dB	2 kHz	7" cone
Yorkville Sound	YSM-1	Bass reflex	Unpowered	40 Hz–20 kHz	90 dB	2.5 kHz	6.5" stamped, proprietary, foam surround
Yorkville Sound	YSM-2	Bass reflex	Unpowered	80 Hz–20 kHz	90 dB	2.2 kHz	5.25" stamped, proprietary, foam surround
Yorkville Sound	YSM-3	Bass reflex	Unpowered	35 Hz–20 kHz	89 dB	700 Hz, 3 kHz	12" stamped, proprietary, foam surround
Yorkville Sound	YSM-4	Bass reflex	Unpowered	50 Hz–18 kHz	88 dB	3 kHz	4" stamped, proprietary, foam surround, polymer

Midrange Size and Type	Tweeter Size and Type	Magnetic Shielding	Cabinet Dimensions (HxWxD)	Weight (lbs.)	Notes	Price (per pair)
N/A	1" ferrofluid-coated soft dome	Yes	15.5"x9.25"x11"	15.5	Terminals allow biwired and standard connections; front-port design	$499.95
N/A	1" ferrofluid-coated soft dome	No	12.8"x9.2"x11.6"	24	British red cones, rear port	$349.95
N/A	0.75" silk dome, ferrofluid	No	12.5"x8.5"x11.5"	16.5	Walnut standard finish; Piano Black Lacquer available ($1,200)	$995
N/A	0.75" silk dome, ferrofluid	Yes	13.5"x8.75"x14.25"	24.25	Walnut standard finish; Piano Black Lacquer available ($2,100)	$1,850
N/A	0.75" silk dome, ferrofluid	Yes	11.5"x9.5"x39.5"	59.5	Piano Black Lacquer standard finish	$3,500
N/A	0.75" silk dome, ferrofluid	Yes	9.25"x21.75"x8.75"	11	Center channel speaker	$995
N/A	1" silk dome, ferrofluid	Yes	33.7"x7.5"x9.8"	34		$1,500
N/A	1" silk dome, ferrofluid	No	40"x7.5"x14.3"	54		$4,500
N/A	1" silk dome, ferrofluid	Yes	13.6"x6.7"x10.2"	19	Center channel speaker	$500
N/A	1" silk dome, ferrofluid	No	13.6"x6.7"x10.2"	19		$895
N/A	1" silk dome, ferrofluid	No	37"x6.7"x11.6"	44		$2,500
N/A	0.75" polymide soft-dome tweeter, ferrofluid cooled	Optional	12.5625"x8.5"x8.375"	12		$1,075
N/A	0.75" polymide soft-dome tweeter, ferrofluid cooled	Optional	12.5625"x8.5"x8.325"	12		$495
N/A	1" silk dome with acoustic cavity, ferrofluid cooled	Optional	15.8125"x10.875"x10.75"	23.5		$1,395
N/A	1" silk dome with acoustic cavity, ferrofluid cooled	Optional	15.8125"x10.875"x10.75"	23.5		$795
N/A	N/A	Optional	18"x20"x20"	53		$1,095 (each)
N/A	N/A	Optional	8.6"x14.1"x10.5"	16.5		$695
8" dual concentric	N/A	Optional	10.8"x17.7"x10.5"	23		$995
N/A	0.75" material soft dome, ferrofluid cooled	Optional	14.25"x8.75"x9.125"	13	Designed specifically for project studio	$295
N/A	1.2" dome speaker	Yes	5.5"x11.375"x7.75"	8.8	Active Servo technology for extended bass response	$249 each
N/A	0.75" dome tweeter with horn	Yes	17.5"x10.5"x9.5"	22	Active Servo technology for extended bass response	$599 each
N/A	1.2" soft dome	No	15"x8.5"x7.875"	13.9		$478
N/A	1" soft dome	Optional	16"x9.5"x9"	18	2" forward-firing port; binding posts	$280
N/A	0.75" soft dome	N/A	13"x7"x8"	9	binding posts	$210
5.5" stamped, proprietary, polymer	1" Hyperbolic dome	N/A	25.75"x16.8"x11.5"	45		$998
N/A	0.75" Dome	N/A	9"x6"x6"	5.5		$158

SEQUENCERS (MIDI and Digital Audio)

Manufacturer	Program	Platform	Simultaneous MIDI Tracks	Maximum Clock Resolution (ppqn)	Quantization Types	Sequencing Method	Editing Views	Graphic Faders	SysEx Editing	Looping	# of Audio Tracks
Cakewalk	Home Studio 5.0	Win 3.1, 95	256	480	Swing, by percentage	Linear	Track/clip, audio, piano roll, controller, staff, event list, tempo, faders	16	No (playback only)	None	4
Cakewalk	Pro Audio 6.0/ Pro Audio 6.0 Deluxe	Win 95	256	480	Groove, swing, by percentage, randomize, humanize	Linear and pattern	Track/clip, audio, effects, piano roll/controller, staff, StudioWare, event list, tempo, SysEx, CAL	Unlimited	Yes	Region, track, sequence	Unlimited (hardware-dependent)
Cakewalk	Professional 5.0	Win 3.1, 95	256	480	Groove, swing, by percentage, randomize, humanize	Linear	Track/clip, audio, piano roll/controller, staff, event list, tempo, SysEx, CAL, faders	32	Yes	Track, sequence	4
Emagic	Logic Audio Discovery 1.1	Mac, Win 95	Unlimited	960	Input, output, swing, groove —all in real time and nondestructive	Linear and pattern	Piano roll, event list, notation, hyper edit/drum and controller edit	Unlimited	No	Region, track, sequence, nested folder (i.e., multiple tracks)	4–32 (hardware-dependent)
Emagic	Logic Audio Gold 3.1	Mac	Unlimited	960	Groove, swing, percentage, range, length, flam, velocity—all non-destructive	Linear, folder	List, score, matrix (piano roll), hyper edit (graphic)	Unlimited	Yes	Region, sequence, folder	48 (hardware-dependent)
Emagic	Logic Audio Gold 3.1	Win 95	Unlimited	960	Groove, swing, percentage, range, length, flam, velocity —all non-destructive	Linear, folder	List, score, matrix (piano roll), hyper edit (graphic)	Unlimited	Yes	Region, sequence, folder	48 (hardware-dependent)
Emagic	Logic Audio Platinum 3.1	Mac	Unlimited	960	Groove, swing, percentage, range, length, flam, velocity —all non-destructive	Linear, folder	List, score, matrix (piano roll), hyper edit (graphic)	Unlimited	Yes	Region, sequence, folder	96 (hardware-dependent)
Emagic	Logic Audio Platinum 3.1	Win 95	Unlimited	960	Groove, swing, percentage, range, length, flam, velocity —all non-destructive	Linear, folder	List, score, matrix (piano roll), hyper edit (graphic)	Unlimited	Yes	Region, sequence, folder	96 (hardware-dependent)
Emagic	Logic Audio Silver 3.1	Mac	Unlimited	960	Groove, swing, percentage, range, length, flam, velocity —all non-destructive	Linear, folder	List, score, matrix (piano roll), hyper edit (graphic)	Unlimited	Yes	Region, sequence, folder	24 (hardware-dependent)
Emagic	Logic Audio Silver 3.1	Win 95	Unlimited	960	Groove, swing, percentage, range, length, flam, velocity —all non-destructive	Linear, folder	List, score, matrix (piano roll), hyper edit (graphic)	Unlimited	Yes	Region, sequence, folder	24 (hardware-dependent)

Integrated MIDI/Audio Edit Screen	Audio Effects	Dynamics Processing	Time Compression/ Expansion	Pitch-Shift Type	Sample-Rate Conversion	DSP Plug-In Formats	Audio-to-MIDI Conversion	Extract Timing from Audio	Special Features	Price
Yes	Graphic EQ, reverse, normalize, 3 dB boost/cut	None	No	MIDI	Yes (imported .wav files)	None	No	No	Notation printing; plays back MCI commands; onscreen tutorials	$129
Yes	Reverb, delay/echo, chorus, flange, parametric EQ, graphic EQ, reverse, normalize, 3 dB boost/cut	None	Yes	Formant-preserving, traditional	Yes (imported .wav files)	DirectX Media	Yes	Yes (time and velocity)		$429 ($529 for deluxe version)
Yes	Graphic EQ, reverse, normalize, 3 dB boost/cut	None	No	MIDI	Yes (imported .wav files)	None	No	No	Notation printing; audio and MIDI sync to all popular SMPTE/MTC formats; Cakewalk Application Language for custom-editing commands; key macros; 256-bank SysEx librarian; plays back MCI commands; onscreen tutorials	$249
Yes	Normalize, change gain, fade in/out, invert, reverse	None	Yes	Traditional	No	None	No	No	Load Logic/Logic Audio files; import Logic/Logic Audio Environment templates (i.e., SysEx mixers, etc.); environment is a virtual studio configuration/ representation; screen sets (definable user interfaces)	$299
Yes	Reverb, chorus, flange, delay, parametric EQ, sweep EQ, hi pass EQ, low pass EQ, hi shelving EQ, low shelving EQ—all real-time	Gain change, audio energizer, normalize, fade-in, fade-out, silence	Yes	Formant-preserving, traditional	Yes	VST, Premiere, AudioSuite	Yes	Yes (time and velocity)	Full TDM support, simultaneous audio hardware support (Audiowerk8, DAE, Korg 1212, CBX, AV, Akai DR8/16), crossfades (nondestructive), 90 user-definable screen-sets, 500 user-definable key commands, 500 user-definable MIDI commands, real-time nondestructive MIDI editing	$499
Yes	Reverb, chorus, flange, delay, parametric EQ, sweep EQ, hi pass EQ, low pass EQ, hi shelving EQ, low shelving EQ—all real-time	Gain change, audio energizer, normalize, fade-in, fade-out, silence	Yes	Formant-preserving, traditional	Yes	Direct X	Yes	Yes (time and velocity)	Simultaneous audio hardware support (Audiowerk8, DAE (Audio Media III), crossfades (nondestructive), 90 user definable screen-sets; 500 user-definable key commands, 500 user-definable MIDI commands, real-time nondestructive MIDI editing	$499
Yes	Reverb, chorus, flange, delay, parametric EQ, sweep EQ, hi pass EQ, low pass EQ, hi shelving EQ, low shelving EQ—all real-time	Gain change, audio energizer, normalize, fade-in, fade-out, silence	Yes	Formant-preserving, traditional	Yes	VST, Premiere, AudioSuite	Yes	Yes (time and velocity)	Full TDM support, simultaneous audio hardware support (Audiowerk8, DAE, Korg 1212, CBX, AV, Akai DR8/16), crossfades (nondestructive), 90 user-definable screen-sets, 500 user-definable key commands, 500 user-definable MIDI commands, real-time nondestructive MIDI editing	$799
Yes	Reverb, chorus, flange, delay, parametric EQ, sweep EQ, hi pass EQ, low pass EQ, hi shelving EQ, low shelving EQ—all real-time	Gain change, audio energizer, normalize, fade-in, fade-out, silence	Yes	Formant-preserving, traditional	Yes	Direct X	Yes	Yes (time and velocity)	SSHDR-1 support, simultaneous audio hardware support (Ausiowerk8, DAE [AudioMedia III], MME [interleaved and multiple stereo]), crossfades (nondestructive), 90 user-definable MIDI commands, real-time nondestructive MIDI editing	$799
Yes	Reverb, chorus, flange, delay, parametric EQ, sweep EQ, hi pass EQ, low pass EQ, hi shelving EQ, low shelving EQ—all real-time	Gain change, audio energizer, normalize, fade-in, fade-out	Yes	Formant-preserving, traditional	Yes	N/A	No	No	Audiowerk8, AV, DAE support, 90 user-definable screen-sets, 500 user-definable key commands, 500 user-definable MIDI commands, real-time nondestructive MIDI editing	$299
Yes	Reverb, chorus, flange, delay, sweep EQ, hi shelving EQ, low shelving EQ—all real-time	Gain change, audio energizer, normalize, fade-in, fade-out, silence	Yes	Formant-preserving, traditional	Yes	N/A	No	No	Audiowerk8, MME, DAE (AudioMedia III) support; 90 user-definable screen-sets; 500 user-definable key commands; 500 user-definable MIDI commands, real-time nondestructive MIDI editing	$299

SEQUENCERS (MIDI and Digital Audio)

Manufacturer	Program	Platform	Simultaneous MIDI Tracks	Maximum Clock Resolution (ppqn)	Quantization Types	Sequencing Method	Editing Views	Graphic Faders	SysEx Editing	Looping	# of Audio Tracks
Emagic	MicroLogic AV	Mac	Unlimited	960	Normal, swing, —all non destructive	Linear	List, score, matrix (piano roll)	GM mixer (16 channels)	No	Region, sequence	16 (system-dependent)
Emagic	MicroLogic AV	Win 95	Unlimited	960	Normal, swing	Linear	List, score, matrix (piano roll)	GM mixer (16 channels)	No	Region, sequence	16 (system-dependent)
Mark of the Unicorn	Digital Performer 2.1	Mac	Unlimited	480	Input, output, swing, groove, humanize, GrooveEditor (built-in)—all in real time and nondestructive	Linear and pattern	Piano roll with controller edit, event list, notation, track overview, QuickScribe notation (WYSIWYG page view of notation)	Unlimited	Yes	Region, track, sequence, nested, independent track loops	4–48 (hardware-dependent)
Mark of the Unicorn	Digital Performer 2.31	Mac	Unlimited	480	Input, output, swing, groove, humanize, Groove Editor (built-in)—all in real time and nondestructive	Linear and pattern	Track overview, graphic, event list, notation, multitrack audio waveform	Unlimited	Yes	Region, track, sequence, nested, independent track loops	Supports maximum tracks allowed by ProTools Project, ProTools III/TDM, and ProTools 24
Mark of the Unicorn	FreeStyle 2.0	Mac, Win 3.1, 95	Trackless—players and takes, dynamic MIDI channel allocation	960	Straight, offset	Linear, loop, arrange window	Piano roll, notation	No	No	Record loop, play loop	None
Mark of the Unicorn	Performer 5.5	Mac	Unlimited	480	Input, output, swing, groove, humanize, GrooveEditor (built-in)—all in real time and nondestructive	Linear and pattern	Piano roll with controller edit, event list, notation, track overview, QuickScribe notation (WYSIWYG page view of notation)	Unlimited	Yes	Region, track, sequence, nested, independent track loops	None
Mark of the Unicorn	Performer 6	Mac	Unlimited	480	Input, output, swing, groove, humanize, GrooveEditor (built-in)—all in real time and nondestructive	Linear, pattern, and chunk	Graphic, event list, notation	Unlimited	Yes	Region, track, sequence, nested, independent track loops	Up to 8 tracks of audio on a Power PC Mac
Midisoft	Midisoft Studio Recording Session 1.0	Win 95	Unlimited	1,000	Percentage	Linear	Notation, MIDI list	Unlimited	Yes	No	8
Musicator	Audio 3.0	Win 3.1, 95	255	480	Swing	Linear and pattern	Piano roll, notation, page view, event list, controllers, overview, chunk, effect, SysEx	>1,000	Yes	Region, jump list	16
Musicator	Musicator Win 3.0	Win 3.x, 95	255	480	Swing, percentage	Linear	Track/passage/bar, roll view, notation, audio, effects, event list, GS/XG, page	>1,000	Yes	Region, notation playback (repeats, numbered endings, DC/DS)	16

Integrated MIDI/Audio Edit Screen	Audio Effects	Dynamics Processing	Time Compression/ Expansion	Pitch-Shift Type	Sample-Rate Conversion	DSP Plug-In Formats	Audio-to-MIDI Conversion	Extract Timing from Audio	Special Features	Price
Yes	Reverb, delay, shelf EQ, fixed frequency shelving EQ	Change gain, normalize, fade-in, fade-out, silence	No	N/A	Yes	N/A	No	No	Nondestructive real-time sequence editing; Mac AV support	$99
Yes	Reverb, delay, fixed frequency shelving EQ	Change gain, normalize, fade-in, fade-out, silence	No	N/A	Yes	N/A	No	No	Nondestructive real-time sequence editing; MME sound card support	$99
Yes	Non-real-time, high-fidelity sample-rate conversion and time compression/ expansion (a la with background processing); real-time: auto-pan, chorus, echo, flanger, phase shifter, reverb, parametric EQ	Compression, expansion, gating, limiting	Yes (with background processing)	Formant-preserving, traditional	Yes	TDM, Premiere, proprietary	No	Yes (if audio is recorded in DP to a disk)	Background processing for pitch shift, time scaling and sample-rate conversion; real-time, nondestructive effects and output processing of MIDI tracks; unlimited takes per track; unlimited mixdowns on entire sequence; complete support for Digidesign TDM plug-ins; built-in QuickTime movie window for 30 fps playback; built-in MMC window with auto-detection of MIDI Timepiece AV and ADAT; notation transcription engine shared with Mosaic 1.5; smart-selection feature allows fast, musical editing	$795 ($295 as upgrade, $395 as upgrade for users of other sequencers)
Yes	Real-time: 3-Verb, PreAmp-1, Sonic Modulator, and auto-pan, chorus, echo, flanger, phase shifter, reverb, parametric EQ	Compression, expansion, gate, limiting	Pure DSP mono & stereo processing, background processing	Pure DSP for monophonic material and conventional pitch shifting for polyphonic in both mono & stereo	Pure DSP algorithm produces no harmonic distortion	TDM, MAS, Premiere	No	No	Drag & drop sampler support; QuickTime movie support; Unisyn editor/librarian integration; custom consoles for Roland VS-880, crossfades, stereo tracks; 24-bit support for ProTools 24 and MOTU Audio 2408; Supports QuickTime Musical Instruments	$795
No	None	None	No	None	No	None	No	No	Sense Tempo feature follows your playing; note-spelling algorithms—get automated transcription and spend less time fiddling with accidents; edit notes during sequence playback; groove metronomes	$199
No	None	None	No	None	No	None	No	No		$495
Yes	EQ, dynamics, chorus, flange, delay, phase shifter, auto-pan, echo, tremolo	Compression, expansion, gate, limiting	No	None	No	MAS	No	No	QuickTime movie support; Unisyn editor/librarian integration; custom consoles for Roland VS-880; window sets; WYSIWYG notation editing	$495
No	Delay, echo, chorus, flanger, EQ	Dynamic markings, accents	No	Traditional	Yes	None	No	No	Multisequence playback; realization of dynamics, articulation marks on score on playback; publisher-quality notation; unlimited MIDI tracks	$149.95
Yes	4-band parametric EQ, reverb, delay, normalize, phase, flange, chorus	Compression, expansion, limiting	No	No	Yes	Proprietary with public interface specification	No	No	Audio/MIDI loop recording with take manager; real-time record/playback of SysEx; integrated and automated mixer for MIDI and audio; supports multiple sound cards simultaneously; graphic mixers for all XG, GS, and SC-88 Pro effects	$399
Yes	None	None	None	None	Yes	N/A	No	No	Professional-quality notation; front-panel controls for GS, XG, and SC-88 PRO effects; long file names under Win 95	$299

SEQUENCERS (MIDI and Digital Audio)

Manufacturer	Program	Platform	Simultaneous MIDI Tracks	Maximum Clock Resolution (ppqn)	Quantization Types	Sequencing Method	Editing Views	Graphic Faders	SysEx Editing	Looping	# of Audio Tracks
Opcode	Musicshop 2.0	Mac; Win 3.1, 95	32	480	Playback or destructive, grid	Linear and pattern	Piano roll, notation	32 volume/ 32 pan	Yes	Track, sequence	None
Opcode	Studio Vision Pro 4.0	Mac	Unlimited	480	Playback only or destructive, grid, groove, swing	Linear and pattern	Piano roll, list edit, notation, overview, pulse edit	Up to 256 (5 consoles)	Yes	Track, sequence	64 (hardware-dependent)
Opcode	Vision 2.5	Win 3.1, 95	Unlimited	480	Playback only or destructive, grid, groove, swing	Linear and pattern	Piano roll, list edit, notation, overview	Up to 256 (5 consoles)	Yes	Track, sequence	None
Opcode	Vision 3.5	Mac	Unlimited	480	Playback only or destructive, grid, groove, swing	Linear and pattern	Piano roll, list edit, notation, overview	Up to 256 (5 consoles)	Yes	Track, sequence	None
Passport Designs	Master Tracks Pro	Win 95, 3.1, Mac	64	960 Win, 240 Mac	swing, by percentage	Linear	Track/clip, piano roll/controller, staff, song play list		Yes	Track	N/A
Personal Composer	Personal Composer 1.3	Win 3.1, 95, NT	16	1,024	Input	Linear	Notation	20 per mixer (multiple mixers)	No	No	None
PG Music	Band-In-A-Box	Win 3.1, 95, 98, NT, Mac 6.07 and higher	8 (5 auto-accompaniment, 2 sequenced, 1 thrill)	120	Swing, by percentage, randomize	User-entered chord progression and style selection	Chord sheet, editable notation staff, staff roll notation, Style editor with notation, Style Maker, MIDI channels, options (includes track settings), Soloist editor, Soloist Maker, Harmonies editor, Harmonies Maker	Spin controls	Send SysEx manually or automatically at launch	Region, sequence	N/A
PG Music	PowerTracks Pro Audio 4.0	Win 3.1, 95, 98, NT	48	960	Swing, by percentage, randomize	Linear, step	Tracks, audio, mixer, events, bars, editable notation staff, Staff roll notation, SysEx editor, tempo map, Meter Map, Sound Canvas editor, guitar fretboard	48	Yes	Region, track, sequence	Up to 48, hardware-dependent
Roland	MC-303 Groovebox	Hardware	8 (16 in Sound Module mode)	96 PPQ	Grid, groove, shuffle	Pattern	N/A	N/A	Yes	Pattern	N/A
Roland	MC-505 Groovebox	Hardware	8 + Mute control track	96 PPQ	Grid, groove (71 types), shuffle	Pattern	N/A	N/A	Yes	Pattern	N/A
Roland	MC50 MKII	MRC	128 + rhythm + tempo	96 PPQ	By ratio	Linear and pattern	Microscope	None	Yes	No	N/A
Steinberg	Cubase Audio XT 3.05/VST 3.55	Win 3.1, 95	Unlimited	384	Over, note on, iterative, analytic, freeze editable, groove	Linear	Key, list, score, drum, logical	1,024 MIDI, 906 Audio	Yes	Part, key editor, region, track, sequence	8 stereo XT, 32 (VST)
Steinberg	Cubase Audio XT/VST 3.5	Mac	Unlimited	384	Over, note on, iterative, analytic, freeze editable, groove	Linear	Key, list, score, drum, logical	1,024 MIDI, 906 audio	Yes	Part, key editor, region, track, sequence	32 (VST)/ 48 (XT)

Integrated MIDI/Audio Edit Screen	Audio Effects	Dynamics Processing	Time Compression/ Expansion	Pitch-Shift Type	Sample-Rate Conversion	DSP Plug-In Formats	Audio-to-MIDI Conversion	Extract Timing from Audio	Special Features	Price
No	None	None	No	None	No	None	No	No	Includes 100 MIDI clips	$99.95
Yes	EQ, normalize, phase invert, reverse	Compression, expansion, gating, limiting	Yes	Formant-preserving, traditional	Yes	Premiere, TDM	Yes	No	Generated sequences; includes OMS Galaxy librarian; EZverb and AudioTrack plug-ins; input effect arpegiate/repeat	$995
No	None	None	No	None	No	None	No	No	Generated sequences; sequence trigger from MIDI in real time (players/queue mode)	$299.95
No	EQ, normalize, phase invert, reverse	Compression, expansion, gating	No	None	Yes	Premiere	No	No	Generated sequences; includes OMS Galaxy librarian; EZverb and AudioTrack plug-ins; Hyperprism; echo and lowpass; audio and MIDI loops	$495
N/A	N/A	N/A	N/A	N/A	N/A	N/A	No	N/A	SMPTE support; built-in SysEx librarian, master fader, MCI-(WIN) event support, song play list; graphical editing of pitch bend, pressure modulation, controller and velocity; tempo map	$99.99
No	None	None	No	Traditional	No	None	No	No		$69–$199
N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Automatic soloing, international language support	$88 (Pro), $189 (UltraPak), $249 (MegaPak)
Multiple windows display	Compressor, gate, distortion, reverb, echo, chorus, flanger, ring mod, tremolo, tone control, graphic EQ, parametric EQ, gain change	Constant gain, variable gain, 32 presets	No	No	Yes (imported WAV files)	Proprietary, developer kit provided	No		Includes PowerGuide video tutorial CD, 2 volumes of live MultiTracks CDs available; PowerPak version includes Volume I of the MultiTracks digital audio CDs, international language support; supports .MID, .KAR, .WAV, .MP3 and any Windows compression format; large window for "big lyrics" display; audio tracks merge/mixdown feature saves to stereo mix with mixer settings	$29, $49 (PowerPak)
No	Reverb, delay, chorus, flanger	N/A	N/A	N/A	N/A	N/A	N/A	N/A	Arpeggiator, RPS, low boost	$895
No	Reverb, Drelay, EFX (24 types)	N/A	No	Traditional	N/A	N/A	N/A	N/A	Interactive, D-Beam, infrared-light sensing controller, Megamix, arpeggiator, RPS, low boost	$1,595
No	None	N/A	No	No	N/A	N/A	N/A	N/A	Step rewrite, velocity rewrite	$795
Yes	Gain change, normalize, reverse, pitch shift, time correction, create stereo/mono, EQ, varispeed, chorus, delay, reverb, panner, fuzz	Compression (WaveLab Lite included)	Yes	Traditional	Yes	VST, DirectX	No	Yes	Studio Module (patch database); Cue Trax (graphic tempo editor); Wavelab Lite (.wav editor included); arpeggiator; CD player; AVI monitor; real-time MIDI processor; Style Trax (auto accompany); interactive phrase synthesizer; professional scoring features; audio with standard Windows sound cards, Digidesign Audiomedia III and Session 8, Akai HDR-8 and 16, Yamaha CBXD-3 and 5; VST Open architecture; real-time plug-in effects processing	$799
Yes	4-band EQ, reverb, chorus, delay, pan, fuzz, tuner, stereo image, spatial image (all real-time)	Normalize, pitch correction, reverse, silence, time correction	Yes	Formant-preserving, traditional	Yes	TDM	No	Yes	Open architecture plug-in interface with 8 spaces for real-time effects processing; various mixdown features for rate, bit, and file format; import ReCycle files; professional I/O support; Style Trax (auto accompany); Cue Trax (graphic tempo editor); includes Time Bandit; native Power Macintosh audio; Pro Tools DAE TDM support with XT	$799

SEQUENCERS (MIDI and Digital Audio)

Manufacturer	Program	Platform	Simultaneous MIDI Tracks	Maximum Clock Resolution (ppqn)	Quantization Types	Sequencing Method	Editing Views	Graphic Faders	SysEx Editing	Looping	# of Audio Tracks
Steinberg	Cubase Score VST 3.52	Mac	Unlimited	[illegible]	Over, note on, iterative, analytic, freeze editable, groove	Linear	Key, list, score, drum, logical	1,024 MIDI, 906 audio	Yes	Part, key editor, region, track, sequence	32
Steinberg	Cubase Score VST 3.55	Win 95	Unlimited	384	Over, note on, iterative, analytic, freeze editable, groove	Linear	Key, list, score, drum, logical	1,024 MIDI, 906 audio	Yes	Part, key editor, region, track, sequence	32
Steinberg	Cubase VST 3.52	Mac	Unlimited	384	Over, note on, iterative, analytic, freeze editable, groove	Linear	Key, list, score, drum, logical	1,024 MIDI			32
Steinberg	Cubase VST 3.55	Win 95	Unlimited	384	Over, note on, iterative, analytic, freeze editable, groove	Linear	Key, list, score, drum, logical	1,024 MIDI 906 audio	Yes	Part, key editor, region, track, sequence	32
Steinberg	Cubasis AV	Mac	64 (x16)	384	Nondestructive program, auto	Linear	Key, list, score	32	No	Part, key editor, region, track, sequence	8
Steinberg	Cubasis AV	Win 3.1, 95	64 (x16)	384	Nondestructive program, auto	Linear	Key, list, score	32	No	Part, key editor, region, track, sequence	8
Voyetra	Digital Orchestrator Pro	Win 3.1, 95, NT 4.0	Unlimited	1,920	Adjust intensity, sensitivity, offset, inside/outside range	Linear	Graphic controller editor, MIDI mixer, multitrack, notation, conductor editor	1 per track	Yes	Region, track	Unlimited (hardware-dependent)
Wildcat Canyon	Autoscore 2.0 Mac Deluxe	Mac	16	480	Notation display, command, curser, duration	Linear and pattern	Track, faders, piano roll, score	16	Yes	Track, sequence	None
Wildcat Canyon	Autoscore 2.0 Mac Pro	Mac	16	480	Notation display, command, curser, duration	Linear and pattern	Track, faders, piano roll, score	16	Yes	Track, sequence	None
Wildcat Canyon	Autoscore 2.0 Win Deluxe	Win 3.1, 95	Unlimited	384	Percentage, notation	Linear and pattern	MIDI list, mixer, piano roll, score, studio panel	Unlimited	No	Track, sequence	1
Wildcat Canyon	Autoscore 2.0 Win Pro	Win 3.1, 95	256	480	Percentage, starting time, duration	Linear and pattern	Track/measure, staff, piano roll, event list, controller, faders	16	No	Track, sequence	None
WinJammer	WinJammer Professional Version 5.0	Win 3.1, 95, NT	256	960	Swing, groove, input, variable strength	Linear	Piano roll, event list, score, drum view	4 per track	Yes	Track	None

Integrated MIDI/Audio Edit Screen	Audio Effects	Dynamics Processing	Time Compression/ Expansion	Pitch-Shift Type	Sample-Rate Conversion	DSP Plug-In Formats	Audio-to-MIDI Conversion	Extract Timing from Audio	Special Features	Price
Yes	4-band EQ, reverb, chorus, delay, pan, fuzz, tuner, stereo image, spatial image (all real-time)	Normalize, pitch correction, reverse, silence, time correction	Yes	Traditional	Yes	VST	No	Yes	Open architecture plug-in interface with 8 spaces for real-time effects processing; various mixdown features for rate, bit and file format; import ReCycle files; professional I/O support; Style Trax (auto accompany); Cue Trax (graphic tempo editor); QuickTime Movie; native Power Mac audio	$549
Yes	Gain change, normalize, reverse, pitch shift, time correction, create stereo/mono, EQ, varispeed, chorus, delay, reverb, panner, fuzz	Compression (WaveLab Lite included)	Yes	Traditional	Yes	VST, DirectX	No	Yes	Studio Module (patch database); Cue Trax (graphic tempo editor); Wavelab Lite (.wav editor included); arpeggiator; CD player; AVI monitor; real-time MIDI processor; Style Trax (auto accompany); interactive phrase synthesizer; open architecture plug-in interface	$549
Yes	4-band EQ, reverb, chorus, delay, pan, fuzz, tuner, stereo image, spatial image (all real-time)	Normalize, pitch correction, reverse, silence, time correction	Yes	Traditional	Yes	None	No	Yes	Open architecture plug-in interface with 8 spaces for real-time effects processing; various mixdown features for rate, bit and file format; import ReCycle files; professional I/O support; Style Trax (auto accompany); Cue Trax (graphic tempo editor); QuickTime Movie; native Power Macintosh audio	$399
Yes	Gain change, normalize, reverse, pitch shift, time correction, create stereo/mono, EQ, varispeed, chorus, delay, reverb, panner, fuzz	Compression (WaveLab Lite included)	Yes	Traditional	Yes	VST, DirectX	No	Yes	Studio Module (patch database); Cue Trax (graphic tempo editor); Wavelab Lite (.wav editor included); arpeggiator; CD player; AVI monitor; real-time MIDI processor; Style Trax (auto accompany); interactive phrase synthesizer; open architecture; real-time plug-in interface	$399
No	2-band EQ, reverb, delay	None	No	None	No	None	No	No	QuickTime movie support; MIDI Clock send and receive; 30 staves of notation; records SysEx; Movie tracks	$99
No	None	None	No	None	No	None	No	No	MIDI Clock send and receive; records SysEx	$99
Yes	Scale, normalize, crescendo/fade, reverse	Compression, limiting, gating, scale, graphic EQ, delay, flanger, chorus	Yes	Traditional	Yes	None	No	No	Mixdown: export to any ACM-compatible format; export to any available codes	$199
No	None	None	No	None	N/A	N/A	Yes	Yes	Real-time pitch-to-MIDI for non-keyboard players; pitch, volume and staff meters; key constrain mode; microphone	$119
No	None	None	No	None	N/A	N/A	Yes	Yes	Real-time pitch-to-MIDI for non-keyboard players; pitch, volume and staff meters; key constrain mode; microphone	$249
No	None	None	No	None	N/A	N/A	Yes	Yes	Real-time pitch-to-MIDI for non-keyboard players; pitch, volume and staff meters; key constrain mode; microphone	$119
No	None	None	No	None	N/A	N/A	Yes	Yes	Real-time pitch-to-MIDI for non-keyboard players; pitch, volume, and staff meters; key constrain mode; microphone; customizable instrument filters; direct connection to other sequencer/notation software programs	$249
No	None	None	No	None	No	None	No	No		$199.95

SOFTWARE PLUG-INS

Manufacturer	Model	Type	Platform	Formats	Special Features	Price
AnTares Systems	Auto-Tune	Automatic and graphic pitch-correction system	Mac	TDM, VST	Automatic detection and correction from A0 to C6, 30 different microtonal and ethnic scales, optional vibrato, desired pitch drawing, pitch correction, speed control	$599 (TDM), $399 (VST)
AnTares Systems	JVP Voice Processor	Compressor, delay effects, parametric EQ, de-esser	Mac	TDM, SDII	24-bit processing, all four processors, two channels on one DSP chip	$499 (TDM), $199 (SDII)
AnTares Systems	Multiband Dynamic Tools	5-band dynamic EQ, compressor, limiter, expander	Mac	TDM, SD I	Graphic interface for gain-curve editing; output limiter (clip sentry); soft clipping; look-ahead processing; gain-reduction meter and clip indicator	$599 (TDM), $249 (SDII)
AnTares Systems	Spectral Shaping Tool	Spectral shaping tool	Mac	TDM	Transforms speaker/room into any desired environment	$499
APB Tools	Sigma 1	Surround-sound production	Mac	TDM, stand alone	Stand-alone DAE-aware application; reads Pro Tools sessions for distributing up to 32 individual tracks or inputs over as many as 16 outputs (2 I/Os) via mouse, joystick, tablet, etc.; converts Pro Tools system into a configurable surround-sound production system. Version 1.6 includes Sample Sync, video capabilities	$2,300
Apogee Electronics	MasterTools	Mastering tools	Mac	TDM	Exclusive UV-22 process to retain 24-bit quality in 16-bit domain, 3-D historical metering, channel phase reverse, DC-offset removal, NOVA digital "over" removal, peak and average metering	$795
Arboretum Systems	Hyperprism 2.0	Lowpass, highpass, bandpass, band-reject, phaser, flanger, chorus, ring modulator, dropper, tremolo, pan, auto pan, vibrato, stereo dynamics, quasi-stereo, pitch-time changer, compressor, reverb, delay, echo, EchoTranz, Sonic Decimator, HyperVerb, frequency-shifter, distortion, Cross-Convolve, Z-Morph, More Stereo	Mac	Imports/exports SDII and AIFF files	Real-time effects processing w/automation; supports all sound cards w/Sound Manager; has direct drivers for AMII, AMIII, and Korg 1212 I/O	$249
Arboretum Systems	Hyperprism Plug-In Pack	Lowpass, highpass, bandpass, band-reject, phaser, flanger, chorus, ring modulator, dropper, tremolo, pan, auto pan, vibrato, stereo dynamics, quasi-stereo, pitch changer, compressor, reverb, delay, echo, EchoTranz, Sonic Decimator	Mac, Win 95	Premiere, AudioSuite, VST, DirectX	Real-time 32-bit audio effects algorithms; supports 11, 22, 44, and 48 kHz sample rates and 8 and 16-bit sample resolutions; automation (VST only)	$299
Arboretum Systems	Hyperprism-TDM	Lowpass, highpass, bandpass, band-reject, phaser, flanger, chorus, ring modulator, dropper, tremolo, simultaneous stereo tremolo, alternating stereo tremolo, simultaneous crossing pan, alternating crossing pan, vibrato, stereo dynamics, quasi-stereo, more stereo, hyperstereo, M-S matrix	Mac (NuBus and PCI)	TDM	Real-time audio effects processing; built-in MIDI-based and time code–based automation of effect parameter changes; multi-effects can be applied on any number of tracks; done with mouse, with MIDI (OMS), and/or with time code based automation	$499
Arboretum Systems	Ionizer 1.0	Noise reduction, compressor, expander, up to 512-band EQ	Mac	Premiere, stand alone	512-band EQ with 32-bit internal processing; restoration and audio sculpting; live processing; unlimited file-length processing; several instances of the same plug-in can be active simultaneously and independently (requires approximately 50 MHz of processing speed per active window); direct support of Audiomedia III, PCI24, and 1212 I/O	$399
Arboretum Systems	MetaSynth	Sampling, wavetable, additive, subtractive, granular and FM sound generating with resynthesis, vocoding, morphing, and convolution technologies	Mac	Imports AIFF and SDII files	Tools for sample editing, advanced sound-morphing tools, frequency-domain graphic filtering, sound spatialization, extensive effects w/real-time preview	$249
Arboretum Systems	Ray Gun	Noise reduction: Static, hiss, pops, clicks, hum, rumble	Mac, Win 95	Premiere, DirectX	Real-time point and shoot interface	$99
Aureal Semiconductor		3-D audio rendering	Mac	TDM	True positional 3-D audio including Audio Wave Tracing	$499
BIAS	SFX Machine	Modular synthesis and multi-effects	Mac	Premiere	Vintage effects and new sonic tools; modular-synth edit screen; expand with downloadable preset files	$299

SOFTWARE PLUG-INS

Manufacturer	Model	Type	Platform	Formats	Special Features	Price
Digidesign	D-Fi	Audio destruction	Mac	TDM, AudioSuite	"Down processing" and analog-synth effects for music and sound design; family of plug-ins: LoFi (noise generation, bit-rate reduction), SciFi (ring and frequency modulation), RectiFi (waveform rectification), VariFi (speed-up and slow-down effects)	$395
Digidesign	D-Verb	Reverb	Mac	TDM	Seven algorithms; presets and adjustable parameters	$495
Digidesign	D NR	Noise reduction	Mac	TDM, SDII	Operates in real time; up to 1,024 bands	$995
Digidesign	DPP-1	Pitch shifting	Mac	TDM	Up to 4-octave range; dynamic automation	$495
Digidesign	ToolBelt	Processing accessories for Pro Tools	Mac	Stand alone, AudioSuite	Provides many non-real-time processes, including TimeMod, looping, reversing, inverting, etc.	$425
Digidesign	VocALign	Automatic audio-synchronization software	Mac	Stand alone, AudioSuite	Provides offline, automatic alignment and editing for lip-synching, foreign dialog replacement and tightening up of double tracking, background vocals, and instruments	$1,595
Dolby	Dolby Surround Tools	Dolby Surround encoder and decoder	Mac	TDM		$1,495
Drawmer	Drawmer Dynamics	Noise gate, expander, compressor, limiter	Mac	TDM	Based on Drawmer's DS201 noise gate and DL241/251 compressor/limiter hardware	$595
DUY	DAD Tape	Analog-tape simulator	Mac	TDM	Models four tape machines, at various speeds, noise reduction	$599
DUY	DAD Valve	Tube simulation	Mac	TDM, SDII VST, Premiere AudioSuite	Uses physical models to simulate tube warmth	$799 (TDM), $469 (SDII), $469 (VST), $199 (Premiere), $469 (AudioSuite)
DUY	Max	Sound-level maximizer	Mac	TDM, SDII VST, Premiere AudioSuite	Intelligent Level Optimization algorithm provides seamless level maximizing and zero harmonic distortion	$399 (TDM), $299 (SDII), $299 (VST), $129 (Premiere); $299 (AudioSuite)
DUY	Shape	Frequency dependent wave-shaping device	Mac	TDM, SDII VST, Premiere AudioSuite	Three independent, user-defined sound shapers with infinite resolution and accuracy	$699 (SDII), $439 (TDM), $439 (VST), $149 (Premiere); $439 (AudioSuite)
DUY	Wide	Stereo multichannel spatial enhancer	Mac	TDM, SDII VST, Premiere AudioSuite	Stereo and multi-channel spatial enhancer	$399 (TDM), $299 (SDII), $299 (VST), $129 (Premiere), $299 (AudioSuite)
Event Electronics	DSP•FX Virtual Pack	EQ and effects	PC	DirectX	32-bit floating point architecture; MIDI controllable parameters; stand-alone mode	$299
Focusrite	d2	EQ	Mac	TDM	Modeled after Red Range 2 Dual EQ designed by Rupert Neve	$995
Gadget Labs	WaveWARM(tm)	Analog-tape and vacuum-tube simulation	Win	DirectX/ActiveMovie, stand alone	Adds warmth and richness to digital audio with special DSP algorithms that simulate vacuum tube overdrive and analog tape saturation	$99.95
Gadget Labs	WaveZIP 1.02	Digital audio file compression	Mac, Win 3.1, 95, NT	MCP	Archiving utility that uses loss-free compression to reduce the size of digital audio files; Explorer-like interface for easy navigation; exclusive MusiCompress algorithm for lightning-fast operation	$49.95
Gadget Labs	WaveZIP(tm)	Completely lossless compression of audio files for storage and archival	Win 95, NT	WAV	Supports standard WAV files (mono or stereo), raw PCM files, and Cakewalk BUN	$49.95
GRM	GRM Tools volume 1	Shuffler, EQ, comb filter, Doppler simulator	Mac	TDM	Only Doppler device available	$499
GRM	GRM Tools volume 2	Bandpass, delay, time freezing, pitch shifting	Mac	TDM	Features 24-tap delay, sharp bandpass filters, time freezing	$499
Independent Audio	CEDAR for Protools	Audio Resteration: real-time declick, decrackle and dehiss	Mac (NuBus)	TDM	Real time	Declick $2,500 Decrackle $2,500 Dehiss $2,500 Hardware card $2,500

ADVERTISER INDEX

ADVERTISER	PAGE	READER SERVICE #
AKG	13	108
Alesis (Adat Type II)	3	102
Alesis (Wedge)	39	127
Audio-Technica	41	128
Audix	171	143
BASF	140	139
Carvin	37	126
Conservatory of Recording Arts & Sciences	173	195
Cakewalk Music Software	21	114
dbx Professional Products	6-7	104
Disc Makers	34	123
Emagic	26	118
Ensoniq	11	107
Event Electronics (Millennium)	9	106
Event Electronics (Layla)	179	149
Fostex	31	-
Full Compass	25	117
Guitar Center	141	140
H.E.A.R.	165	-
HHB Communications	167	142
HIP	177	-
Kurzweil Music Systems	19	113
Lexicon	27	119
Mackie	2	101
Mark of the Unicorn	180	100
Midisoft	51	133
Music Industries	29	120
Musitek	177	147
Musician's Friend	43	130
Neumann/USA	20	129
Neutrik	45	116
Opcode	8	105
Peavey	93	137
Quantegy	35	124
Recording Industry Sourcebook	44	131
Roland	4-5	103
Sam Ash Professional	92	-
Seer Systems	33	122
Shure	14	109
Sony	17	-
Steinberg North America	23	132
Sweetwater Sound	15	110
Syntrillium Software	91	135
Tascam (DA-38)	18	112
Tascam (DA-302)	120-121	138
TLAudio/Sascom Marketing	36	125
Thoroughbred Music	22	115
WD Coakley Sound Design	176	146
Whisper Room	173	144
Yamaha	89	134

SOFTWARE PLUG-INS

Manufacturer	Model	Type	Platform	Formats	Special Features	Price
Intelligent Devices	AD-1 Pro Audio Analyzer	Spectrum analyzer, supermeter, phase scope, waveform monitor	Mac	TDM, stand alone	Peak meters will show a single-sample clip, waveform display keeps a graphic history of every clip	$449 (TDM); $349 (stand alone)
Intelligent Devices	IQ Intelligent Equalizer	Adaptive learning EQ	Mac	TDM	Learns and automatically alters the spectrum of any audio signal to match that of any other signal	$749
InVision Interactive	Cybersound FX	Multi-effects	Mac	Premiere, SoundEdit 16	15 assorted plug-ins	$129
JLCooper	V/Desk 02R	Automation software for the Yamaha 02R	Mac	Yamaha 02R	Provides time code–synchronized dynamic recording and playback of all 02R functions	$599.95
Lexicon	LexiVerb	Lexicon reverb	Mac	TDM	Four algorithms (plate, chamber, inverse, gate); customizable control of all parameters via macro controls; Pro Tools 4.0 automation support; 100 presets	$795
Liquid Audio	Liquifier Plug-in for ProTools	Internet audio mastering software	Mac	AudioSuite	Uses Dolby Digital, used in conjunction with free Liquid Music Player	$295
Opcode	Fusion Filter	Variable pole filter	Mac; Win 95	Premiere, AudioSuite, DirectX, (TDM, VST soon)	Three filters in a single patch, "pulse sequencer"	$199.95 (TDM TBA)
Opcode	Fusion Vinyl	Emulated record surface characteristics	Mac; Win 95	Premiere, AudioSuite, DirectX, VST soon	Add scratches, dirt, hiss, surface wear, warp, rumble	$99.95
Opcode	Fusion Vocode	Classic vocoder	Mac; Win 95	Premiere, AudioSuite, DirectX, (TDM, VST soon)	5-band tone control	$199.95 (Premiere, AudioSuite, DirectX) (TDM TBA) - $495 (TDM)
QSound Labs	QSYS/TDM 2.0	Mono-to-3-D audio localizer	Mac	Pro Tools 3.x, 4.0/TDM	Completely automated under Pro Tools 4.0; unlimited inserts (restriction based only on amount of DSP Farms available)	$495
QSound Labs	QTools/AX 1.0	3-D audio	Win 95, NT	DirectX	Three separate 3-D audio processing tools; mono-to-3-D localizer and simulated stereo processor; 3-D stereo sound-field expander	$219
QSound Labs	QTools/SF 1.2	3-D audio	Win 95, NT	Sound Forge 3.0d and above	Three 3-D sound enhancement plug-ins for Sound Forge (mono-to- 3-D localizer, 3-D stereo soundfield expander, and high-definition sample-rate converter)	$195
QSound Labs	QX/SDII 2.0	3-D stereo sound-field expander	Mac	SDII	Compatible with NuBus SDII	$195
QSound Labs	QX/TDM 2.0	3-D stereo sound-field expander	Mac	Pro Tools 3.x, 4.0/TDM	Completely automated under Pro Tools 4.0; AudioSuite compatible	$195
SEK'D	Samplitools D-EQ	Dynamics processor, EQ	Win 95, NT	DirectX		$99
Sonic Foundry	Batch Converter	Batch file processing and file conversion	Win 3.1, 95, NT	Sonic Foundry proprietary	Extract regions to independent sound files; modify or chain existing functions to create limitless new effects; convert files to and from many sound-file formats	$199
Sonic Foundry	Noise Reduction	Customized dynamic frequency filtering	Win 3.1, 95, NT	Sonic Foundry proprietary; DirectX	Accentuate or attenuate individual frequency points; specify attack and release speeds, FFT size, high-shelf gain, and overlap setting; click-removal tool; vinyl-restoration tool	$249
Sonic Foundry	Spectrum Analysis	Frequency analysis	Win 3.1, 95, NT	Sonic Foundry proprietary	Monitors playback in real time; six windowing functions include Blackman-Harris, Hamming, and Hanning; Show Notes function displays musical notes and harmonics of selection; Sonogram format displays in black and white or color, with color intensity related to amplitude; Spectrum Graph format allows linear and logarithmic displays with line graphs, bar graphs, or filled graphs	$149
Spatializer	PT3D	3-D audio mixing tool	Mac	TDM	"Set & forget" performance; can spatialize an unlimited number of tracks; mono compatible	$399
Steinberg	Ambisone	3-D stereo field audio placement	Mac	VST	Modulation sources are included to automate 3-D placement	$199
Steinberg	Audio Track VST	Equalization/compression/ expansion/gate	Mac VST, Win 95	Mac VST, Wavelab (included only with producer pack)	Keyboard entry and graphic control	Mac $249 Win bundled with producer pack

SOFTWARE PLUG-INS

Manufacturer	Model	Type	Platform	Formats	Special Features	Price
Steinberg	DeClicker	Real-time removal of pops and clicks from recordings	Mac, Win 95, NT	Mac: TDM, VST; Win: WaveLab 2.0, DirectX	Audio restoration of vinyl records or digital static	$399
Steinberg	DeNoiser	Real-time removal of broadband noise form any audio material	Mac, Win 95, NT	Mac: VST; Win: WaveLab 2.0, DirecX		$399
Steinberg	Free Filter	Linear phase 1/3-band equalizer	Mac, Win 95	Mac VST, Win: WaveLab, VST, DirectX		$399
Steinberg	Free-D	Realtime 3-D simulation	Mac	VST	Uses Apple Quickdraw 3-D technology	$199
Steinberg	Grungelizer	Adds pops, clicks, noise, and hum to audio material for dating and emulating vinyl records	Win 95, NT	WaveLab		Free with WaveLab 1.5
Steinberg	Loudness Maximer	Adaptive dynamics optimizer	Mac; Win 95, NT	Mac: VST, TDM; Win: WaveLab, DirectX	Increases volume without changing characteristics of original source material	$399
Steinberg	Magneto	Analog tape-saturation emulation	Mac; Win 95	Mac: VST; Win : WaveLab, VST, DirectX	Analog warmth with digital audio	$399
Steinberg	Red Valve-it	Tube-amp and speaker emulator with 3-band EQ and gate	Mac	TDM, VST		$199
Steinberg	Roomulator	Reverb set for Cubase VST	Mac	VST	Intuitive 2-D manipulation capabilities let you easily adjust the overall room timbre while listening to the results in real time	$399
Steinberg	Spectralizer	Sonic optimizer	Mac, Win 95, NT	Mach: TDM, Win: WaveLab 1.5, VST, DirectX	Boosts second- and third-order harmonics, increasing presence and clarity	$399
Steinberg	Time Guard	Timing analyzer for detecting and correcting delays between audio tracks	Mac	TDM	Detects and displays rushing and dragging	$399
Steinberg	Tun-A	Chromatic and guitar tuners for checking pitch of recorded material or tuning instruments	Mac	TDM		$149
Steinberg	Voxciter	Vocal recording finalizing/ refreshing/restoring	Mac	Mac VST	Flexible noise gate; dual vocal parametric equalizer; vocal compressor/ expander with attack/release; independently equalizable sidechain feed for compressor/expander; real-time neural automatic de-esser	$399
Steinberg	Waldorf D-Pole VST	Multimode filter	Mac, Win 95	VST	LFO modulation to different destinations; tempo and time based rates; low-, band- and high pass, notch and resonator w/resonance, either 12 dB or 24 dB per octave	$199
TC Electronic	TC Native EQ	EQ	PC	DirectX	Graphic and parametric user interfaces for equalization	$449
TC Electronic	TC Native Reverb	Reverb	PC	DirectX	Graphic and parametric user interfaces for reverb design	$549
TC Electronic	TC Reverb/ Soundscape	Reverb	PC	SoundScape	Provides TC-Quality reverb for all Soundscape DAW users	$699
TC Electronic	TC Tools	Reverb and chorus/delay	Mac	TDM	Based on TC Electronic M5000 digital audio mainframe reverb	$995
Wave Mechanics	Pure Pitch/with Pitch Doctor	Pitch shifter/automatic tuning algorithm	Mac	TDM	Alters pitch of vocal and instrument sounds without distorting original character; can adjust inflections of dialog to enhance expressiveness; automatically corrects intonation problems; includes comprehensive preset library	$695
Waves	DeEsser	DeEsser	Mac, Win (NuBus only)	TDM, SDII MultiRack, AudioSuite, Premiere, VST, ActiveMovie	Simple interface for DeEssing with lower CPU requirements; requires WaveKey ($100)	$200
Waves	DSP for Windows Bundle	Bundle	Win	V8 and ActiveMovie	Contains L1, UltraMaximizer, C1, compressor/gate/expander/sidechain, Q10 ParaGraphic EQ, S1 Stereo Imager, TrueVerb; includes WaveKey dongle	$1,000
Waves	EasyWaves Bundle	Entry level plug-in bundle	Mac, Win	Premiere, AudioSuite, VST, ActiveMovie	Contains AudioTrack 4-band EQ/compression/gate and EZVerb	$150

SOFTWARE PLUG-INS

Manufacturer	Model	Type	Platform	Formats	Special Features	Price
Waves	Gold Bundle	Bundle: L1, C1, Q10, S1, TrueVerb, PAZ, MaxxBass, RenComp, PS22, AudioTrack, DeEsser, WaveConvert Pro, Multirack	Mac	TDM, SDII (NuBus only), MultiRack, AudioSuite, Premiere	Includes all current Waves plug-ins/applications; users receive all new plug-ins released in 1998; includes WaveKey dongle	$2,300
Waves	MaxxBass	PsychoAcoustic Bass Enhancement	Mac, Win	TDM, SDII (NuBus only), MultiRack, Premiere, AudioSuite, VST ActiveMovie	Virtual subwoofer, requires WaveKey dongle	$300
Waves	Native Power Rack	Bundle	Mac, Win	AudioSuite, Premiere, VST, ActiveMovie	Contains L1, UltraMaximizer, C1, includes WaveKey dongle	$495
Waves	PS-22 StereoMaker	Pseudo stereo processor	Mac	TDM, SDII (NuBus), MultiRack	Creates stereo images from mono sources based on user defined curves. Also enhances stereo files Requires WaveKey dongle $100	$300
Waves	Renaissance Compressor	Analog compression emulation	Mac	TDM, SDII (NuBus), MultiRack	Recreates the warm sound qualities and simple operation of classic analog compression. ARC automatic release control Requires WaveKey dongle $100	$300
Waves	TDM Bundle	Bundle	Mac	TDM, SDII (NuBus only), MultiRack, AudioSuite, Premiere	Contains L1, UltraMaximizer, C1, includes WaveKey dongle	$1,000

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SONIC TREATMENT

Manufacturer	Model	Type	Fire Rating	Dimensions	Special Features	Price
ASC	Attack Wall system	Acoustic SubSpace (gobos) for tracking, mixing, and mastering	N/A	Varies	Consists of Studio Traps and Monitor Stands; isolates the listening position from the room	$4,000–$10,000
ASC	Monitor Stand	Monitor stand and bass trap	N/A	13", 16", 20" diameter, up to 4' tall	Eliminates the midbass hump for increased punch and bass extension, concentrating on the vertical energy between floor and ceiling; 200 lb. load capacity	$698–$1,356
ASC	Quick Sound Field (QSF) system	Acoustic SubSpace (gobos) for recording	N/A	Varies	Consists of 8 or more Studio Traps to isolate signal from room; increase or decrease room ambience by adjusting placement; can be adjusted for a bright or dead recording	Starts at $2,550
ASC	Studio Trap	Bass trap and main building block of Attack Wall and QSF systems	N/A	9" diameter x 4' tall, can be raised to 6.5' (includes stand)	Consists of diffusive side and absorptive side; adjustable for different applications, absorbs 110 Hz and 400 Hz	$315
ASC	Tube Trap	Bass trap	N/A	9", 11", 16", 20" diameter; 4' tall	Bass absorption down to 35 Hz with built-in diffusion above 400 Hz	$248–$678
Acoustic Systems		Acoustic enclosures	N/A	Varies	Modular steel isolation enclosures	$4,700–$10,500
Acoustical Solutions	AAP AlphaPyramid foam	Sound-absorbing foam	ASTM E-84 Class 2	2'x2' sheets; 2", 3", and 4" thick	Matching pattern; variety of colors; NRC 0.70–1.00	$160–$178/box
Acoustical Solutions	AB10-NR Audio-Seal Sound Barrier	Sound-transmission blocker, high temperature–fused vinyl	N/A	Roll: 54"x60'x1/8"	STC 27, stops noise from transmitting through walls, floors and ceilings	$1.75–$2.25 per square foot
Acoustical Solutions	AS1, AS2 AlphaSorb Panels	Rigid, sound-absorbing wall panels and hanging baffles	Class 1	Any size up to 4'x10', 1" or 2" thick	NRC 0.80–1.00; 60 colors; custom shapes and cut-outs available	$39–$280
Acoustical Solutions	Soundtex, SD2BT, SD2YD	Fabric wall covering	Class 1	Bolt: 54"x35 yards; linear yard: 54"x36"	18 colors; NRC 0.25; easy to install	Bolt: $850; yard: $32
Auralex Acoustics	LENRD (Low End Noise Reduction Device)	Bass trap	Class B	24" tall x 16" wide	12 different colors; 8 pieces per box; triangular to fit corners; price includes shipping	$239.92 per box
Auralex Acoustics	SheetBlok	Sound barrier	Class B	1/8" thick; 4'x10' and 4'x30' roll sizes	STC 27, impervious to solvents; UPS shippable; price includes shipping	$140 (4'x10'), $360 (4'x30')
Auralex Acoustics	Studiofoam	Absorptive foam	Class B	2'x4' panels; 1", 2", 3", and 4" thicknesses	12 colors; wedge cut and pyramid designs; 6–20 pieces per box (depending on thickness); price includes shipping	$187.64–$259.94 per box
Auralex Acoustics	T-Fusor	Diffusor	N/A	2'x2'	Wall mountable; fits drop ceilings; easily painted; 4 pieces; price includes shipping	$219.96
Folded Space	Acoustic Space	Modular system: diffusor, absorptive foam, acoustic panels, gobos	Class B foam and wood	Modular system: each panel 2'x4'	128 square feet of surface area (64 reflective and 64 absorbent); eight acoustic panels, four sets stilts and linking hardware; shippable via UPS	$549
Folded Space	Big Travel Kit	Modular system: diffusor, absorptive foam, acoustic panels, gobos	Class B foam and wood	Each panel 2'x4'	64 square feet of surface area (32 reflective, 32 absorptive); four acoustic panels, two sets stilts, stacking and linking hardware; kit produces two bifolds on stilts, four freestands or one stacked bifold; shippable via UPS	$279
Folded Space	Folded Wall	Modular system: bass trap, diffusor, absorptive foam, acoustic panels, gobos	Class B foam and wood	Each panel 2'x4'	Over 128 square feet of surface area; eight acoustic panels, four sets linking hardware, two stacking kits; may also be set up in subspace arrays; shippable via UPS	$549
Folded Space	Medium Room Kit	Modular system: diffusor, absorptive foam, acoustic panels, gobos	Class B foam and wood	Modular system: each panel 2'x4'	Over 128 square feet of surface area; eight acoustic panels, two swivel stands, two sets stilts, six standoffs, linking hardware, and two extra 2'x4' slices of Auralex Studiofoam; shippable via UPS	$649

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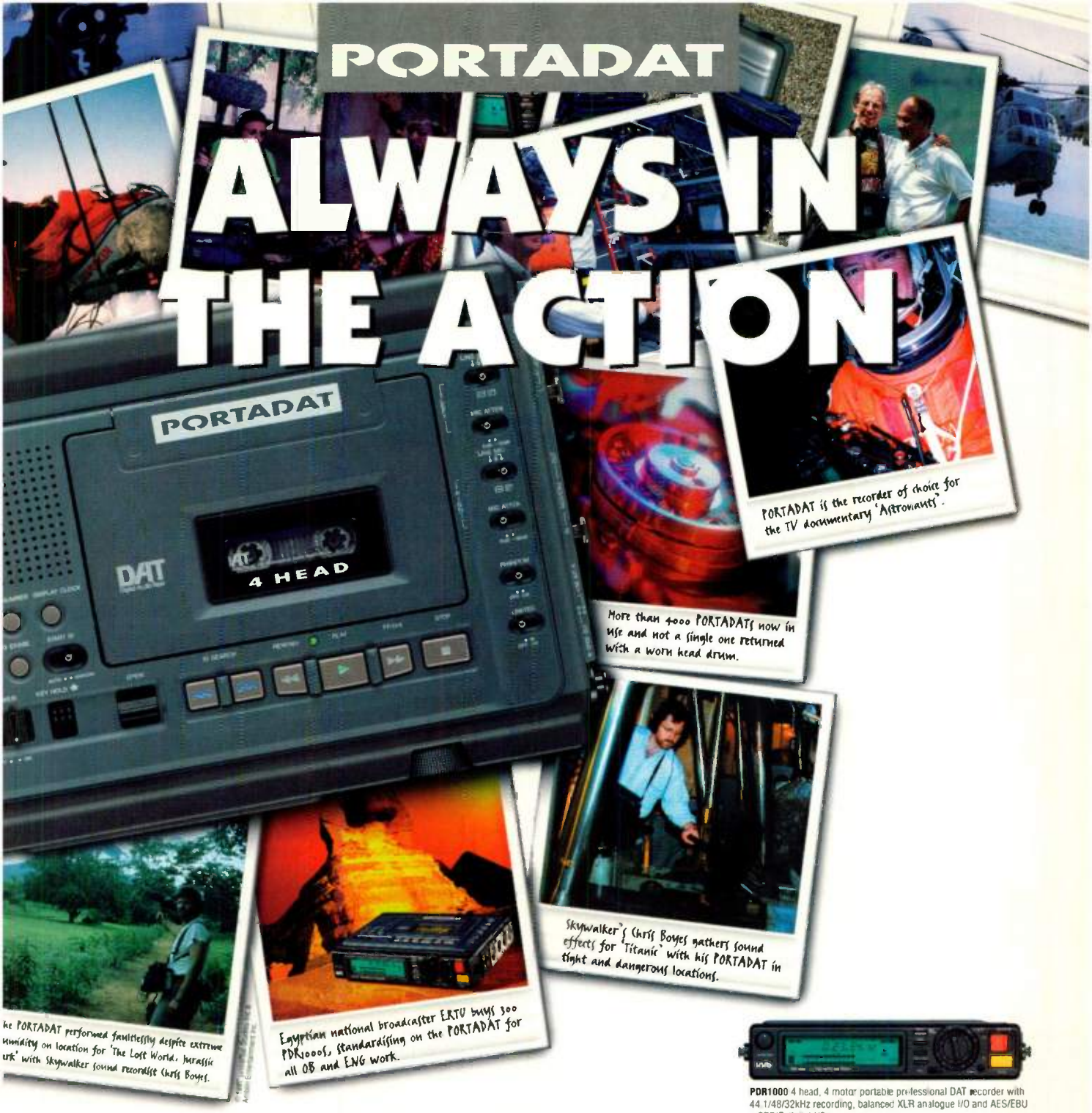

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SONIC TREATMENT

Manufacturer	Model	Type	Fire Rating	Dimensions	Special Features	Price
Folded Space	Small Room Kit	Modular system: diffusor, absorptive foam, acoustic panels, gobos	Class B foam and wood	Each panel 2'x4'	64 square feet surface area (32 reflective, 32 absorptive); four acoustic panels, two swivel stands, linking hardware, wall standoffs, and two extra 2'x4' of 2" Auralex Studiofoam	$329
Folded Space	Small Travel Kit	Modular system: diffusor, absorptive foam, acoustic panels, gobos	Class B foam and wood	Each panel 2'x4'	Two acoustic panels (32 square feet of surface area); one set stilts and linking hardware; makes a bifold on stilts or two freestanding floor panels; light enough to be carried in one hand; shippable via UPS	$144
Folded Space	Space Doc	Modular system: diffusor, absorptive foam, acoustic panels, gobos	Class B foam and wood	Each panel 2'x4'	96 square feet of surface area (48 reflective and 48 absorbent); six acoustic panels, two swivel stands, two sets stilts and linking hardware; shippable via UPS	$439
Folded Space	Space Doc Plus	Modular system: bass trap, diffusor, absorptive foam, acoustic panels, gobos	Class B foam and wood	Each panel 2'x4'	164 square feet of surface area, six cloaking device acoustic panels plus LENRD bass traps, and six 2'x4' slices of 2" Auralex Studiofoam	$599
Folded Space	VOX BOX	Modular system: diffusor, absorptive foam, acoustic panels, gobos	Class B foam and wood	Each panel 2'x4'	128 square feet of surface area (64 reflective and 64 absorbent), designed for vocals; eight acoustic panels mounted on four double-height swivel stands; shippable via UPS	$699
Illbruck	SONEX	Absorptive foam	Class 1 or Class 2	2'x4' or 4'x4', 2", 3" and 4" thickness	Many colors and patterns available	$2.50–$6 per square foot
Industrial Acoustics	Quad Series Rooms	Noise reduction, bass trap, diffusion, absorption	Available on request	Custom	Offers complete studio treatment	Starts at $7,000
Markertek Video	Blade Tiles: BT-2, BT-3, BT-4	Acoustic foam	UL94-HF-01	BT-2: 2"x16"x16"; BT-3: 3"x16"x16"; BT-4: 4"x16"x16"	Available in charcoal gray or medium blue (BT-2, BT-3 only); delivers superior sound absorption for studios and control rooms	$3.49 (BT-2); $4.49 (BT-3); $5.49 (BT-4)
Markertek Video	Markerfoam MF-3 and MF-4	Acoustic foam sheets	UL94-HF-01	MF-3: 54"x54"x2"; MF-4: 54"x54"x3"	Available in charcoal gray or medium blue; delivers superior sound absorption for studios and control rooms	$19.99 (MF-3), $29.99 (MF-4)
Netwell Noise Control	Pyramids	Acoustic foam	Class 1 or 2	2'x2'x3" thick	Absorbs 90% reflected sound	$2–$4 per square foot
RPG Diffusor	BASS Trap	Bass Trap	Class A	23 5/8"x23 5/8"x12 1/4"	Designed to handle modal problems in rooms with 8' to 9' ceilings; maximum efficiency between 70–80 Hz	$538 (for two)
RPG Diffusor	ProFoam	Absorbing Foam Panel	Class A MelaFlex or ClassB/C Polyflex	2'x2'x2", 4'x2'x2"	Employing VDAC Technology	Polyflex $2.31 per square foot. MelaFlex - $5.07 per square foot
RPG Diffusor	RFZ Abflector	Absorbing panel	Class A	19"x47 1/4"x6"	Provides exceptional broadband reflection control, improves imaging	$541.80 (for four)
RPG Diffusor	Skyline	Diffusor	Class A	23 5/8"x23 5/8"x7"	Omnidirectional, primitive root diffusor, ideal for small rooms	$270.90 (for two)
RPG Diffusor	SoundCorner	Bass Trap	Class A	48"x24"x2"	Absorbs lower frequencies from 150 Hz to 300 Hz	$248.64 (for four)
Silent Source	SoundSucker	Corner bass traps	Class A, Class C	12"x48"	Available in charcoal, beige, brown, blue, red, purple, and yellow; 8 units per box; delivery included	$200
Silent Source	Whisper Wedge	Absorptive foam	Class A, Class C	24"x48"; 2", 3", 4", and 6" thick	Many colors to choose from, 2–12 sheets per box (16–96 square feet), depending on size; Class 1 also available	$160–$250 per box

SONIC TREATMENT

Manufacturer	Model	Type	Fire Rating	Dimensions	Special Features	Price
Systems Development Group	Cutting Wedge	Absorptive foam	Southwest Laboratory fire and smoke analysis available on request	Various	Sawtooth pattern designed to provide the greatest absorption per square foot; excellent tear resistance and shape memory	Starts at $2.63 per square foot
Systems Development Group	Model C	Diffusor	Full Class A	23"x23"x4.5"	Easy installation on wall or drop into a 24"x24" opening of a T-Bar grid; a version is available with a center cutout for recessed lighting fixtures	$130
Systems Development Group	Model E	Diffusor	UL723 flame and smoke	15"x15"x9"	Small footprint; light weight; simple installation	$55
Systems Development Group	Sonora Panel	Absorptive fiberglass	Class A	Up to 48"x120"x4"	Molded fiberglass board with nonresin chemically hardened edges, wrapped in Guilford fabrics; panel edges	Varies
Taytrix	Absorptive Panels	Absorptive panels	Class 1	2'x2', 2'x4', 2'x6'	Fiberglass absorption panels trimmed with decorator fabrics	Starts at $129
Taytrix	Bass Trap	Bass trap		Varies	Custom orders for specific frequency trapping	Starts at $18 per square foot
Taytrix	Portable Gobo System	Gobo	Class 1	16"x8"x48", 32"x8"x48"	Stackable, lightweight, modular, interlocking acoustical control panels can be used independently, joined at any angle, or assembled into full booths	$300–$445
Wenger	Ceiling Diffusor	Acoustical panels	Class A	2'x2', 4'x4'	Convex shape, impact-resistant PVC/acrylic plastic	$81 (2'x2'); $173 (4'x4')
Wenger	Pyramidal Diffusor	Acoustical panels	Class A	2'x2', 4'x4'	Offset pyramid shape, impact-resistant PVC/acrylic plastic	$49 (2'x2') $206 (4'x4')
Wenger	Quadratic Diffusor	Acoustical panels	Class A	4'x4' (wells per sequence: 7; largest sequence: 4; sequences per panel: 3	Design based on quadratic theory, effective over frequency range of 750 Hz to 3.3 kHz, impact-resistant PVC/acrylic plastic	$406
Wenger	Trapezoidal Diffusor	Acoustical panels	Class A	2'x2', 4'x4'	Offset trapezoid shape, fiberglass resin with white gel-coat finish	$88 (2'x2') $141 (4'x4')
Wenger	V-Room	Sound-isolating, modular studio with active acoustics (LARES-based)	Class A	From 5'8"x5'8" to 10'8"x13'2"	Variable acoustics provide acoustical simulations of 10 different environments	Starts at $14,487
Wenger	Wall Diffusor	Acoustical panels	Class A	4'x4', 4'x8', other sizes available	Convex shape, PVC/acrylic plastic with reinforced corners and durable fabric covering	$238 (4'x4'); $492 (4'x8')
Whisper Room	42442PV and 4260PV	Practice/vocal booths	N/A	42"x42"x82.5"; 42"x60"x82.5"	Portable; modular; cable passage; ventilation system; door window	$2,499–$2,999
Whisper Room	PX Series enclosures	Sound-isolation	N/A	4'x4' and up ventilation system; door	Portable; modular; cable passage; window; expandable	Starts at $4,975
Whisper Room	SE Series	Sound-isolation enclosures	N/A	Various standard sizes available	Portable, modular; easy assembly/disassembly; cable passage; ventilation system; door window; optional wall windows and caster plates	Starts at $2,195

STUDIO FURNITURE

Manufacturer	Model	Type	Dimensions	Special Features	Price
Argosy Console	90 Series Console Housing	For Mackie 8•Bus mixers	89.5"–178"Wx45"Dx30"H	Expandable housing with rack inserts for patch bay, outboard gear, and/or computers	$1,520 and up
Argosy Console	90 Series Console Housing	For Soundcraft Ghost mixers	89.5"–149"W x45"Dx9"H	Expandable housing with rack inserts for patch bay, outboard gear, and/or computer	$1,538 and up
Argosy Console	90 Series Console Housing	For Yamaha 02R mixers	89.5"–149"Wx45"Dx39"H	Expandable housing with rack inserts for outboard gear and/or computers	$1,729 and up
Argosy Console	90 Series Console Housing	For Digidesign ProControl	89.5"–149"Wx45"Dx30"H	Expandable housing with rack inserts for patch bay, outboard gear, and/or computers	$1,529 and up
Argosy Console	90 Series Console Housing	For TASCAM DM8000 Digital Mixer	89.5"–149"Wx45"Dx39"H	Expandable housing with rack inserts for patch bay, outboard gear, and/or computers	$1,529 and up
Argosy Console	DUAL 15	Workstation for digital based recording, mixing, and post systems	94"Wx50"Dx43"H	Holds (2) 21" computer monitors; 38 rackspaces	$1,199
Argosy Console	Nevis Console Housing	For Mackie 8•Bus mixers	68.2"Wx44"Dx30"H	Console housing with eight 19" integrated rackspaces	$699 and up
Argosy Console	Nevis Console Housing	For Yamaha 02R	68.2"Wx44"Dx30"H	Console housing with eight 19" integrated rackspaces	$819.95 and up
Argosy Console	Nevis Console Housing	For Soundcraft Ghost	68.2"Wx44"Dx30"H	Console housing with eight 19" integrated rackspaces	$819.95 and up
Argosy Console	Spire Rack Enclosures	Single, double, and quad 14 rack bays	22.7–82.25"Wx33"Hx24"D	Sturdy frame panel construction w/removable access doors	$289.95 and up
Argosy Console	Spire Speaker Stands	42" speaker stand	Base: 16"Wx16"D, Top: 12"Wx12"D	For close-field monitoring	Single $54.95; Pair $99.95, Three $139.95
Bryco Products	CD60, CDB60	Solid oak CD racks	21.5"x11"x4.75" (natural & black)	Table/wall-mount holds 60 CDs	$59.95
Bryco Products	DP8, DP16, DP40	DAT-tape carrying case	8: 7.5"x4"x3" 16: 7.6"x7.6"x3" 40: 17.75"x8"x3"	Three models (8, 16, 40 capacity); nylon with plastic inserts	$13.95 (8); $19.95 (16), $39.95 (40)
Bryco Products	DR-60 DATRAX	DAT-tape holder—solid oak (natural & black)	21.25Wx9.5"Dx2"H	Wall- or table-mount; holds 60 DAT tapes	$59.95
Bryco Products	DRP-40	DAT-tape holder	17.4"Wx7.4"Dx2"H	Wall- or table-mount; holds 40 DAT tapes	$21.95
Bryco Products	DSD-320	DAT-tape storage cabinet	19.5"Wx21.75"Dx15.5"H	Stores 320 DAT tapes	$349
Littlite		Task lamps	6", 12", or 18" goosenecks	Flexible task lamp available in 5W or 2.5W	$25–$160
Omnirax	C2	Keyboard composing/audio-video workstation	45.8"Hx43.4"Dx107.25"W	Expanded workstation will fit any keyboard or double as an A/V editing station; room for two computer monitors, close-field monitors, and computer keyboard; 58 total rack spaces	$1,599.95
Omnirax	Coda	Digital editing/mixing workstation	38.8"Hx38.5"Dx67.9"W	Compact ergonomic environment for computer and peripherals; inspired by Mackie's HUI, will also fit Yamaha 03D and other compact mixers and controllers; 8 rackspaces	$749.95
Omnirax	Commander	Keyboard, composing, mixing workstation	48"Hx44.5"Dx87.3"W	Ultimate keyboard workstation for up to 88-note keyboards; room for computer and close-field monitors; 60 total rackspaces	$1,299.95
Omnirax	CW-22	Rolling studio rack	50.5"Hx23.75"Dx20.6"W	22 rackspaces: 8 vertical below, 14 slanted above	$274.95
Omnirax	CW-30	Rolling studio rack	36.5"Hx36.5"Dx20.6"W	14 rackspaces on sloping top, 10 rackspaces below, 6 more in lower rear	$299.95
Omnirax	E-146	Rolling studio rack	30"Hx26"Dx20.6"W	Versatile slant rolling rack. 14 spaces front, 6 spaces in lower rear	$209.95
Omnirax	M8	Mixing workstation	45.5"Hx36"Dx40.5"W	Sized to fit Mackie 24•8 mixer; 8 total rackspaces above	$399.95
Omnirax	MiniStation	Compact keyboard/computer workstation	39.75"Hx30"Dx48"W	Perfect for keyboards up to 46.5" wide; space for computer; complete computer keyboard and writing shelf; 6 rackspaces	$669.95
Omnirax	MixStation MAK24•8	Console workstation for Mackie 24•8 bus mixer	43"Hx38"Dx81.5"W	Ergonomic, multilevel working environment for Mackie 24•8 mixer, computer, and associated peripherals; total 42 rackspaces	$1,199.95
Omnirax	MixStation MAK32•8	Console workstation for Mackie 32•8 bus mixer	43"Hx38"Dx90.5"W	Ergonomic, multilevel working environment for Mackie 32•8 mixer, computer, and associated peripherals; total 42 rackspaces	$1,249.95

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STUDIO FURNITURE

Manufacturer	Model	Type	Dimensions	Special Features	Price
Omnirax	MixStation O2R	Console workstation for Yamaha O2R	43"Hx38"Dx70.5"W	Ergonomic, multilevel working environment for Yamaha O2R mixer, computer, and associated peripherals; total 42 rackspaces	$1,199.95
Omnirax	Mobi	Mobile computer workstation	55.5"Hx28.75"Dx20.6"W	Room for 14" monitor, CPU, and computer keyboard; 10 rackspaces	$399.95
Omnirax	Pro-20	Rolling studio rack	45"Hx18"Dx20.6"W	Versatile slant front, 20-space rolling rack	$239.95
Omnirax	Pro-316	3-bay producer's studio rack	34.25"Hx27.75"Dx62"W	Versatile slant rolling rack, 48 total rackspaces in 3 slanted bays of 16 spaces; large top surface area	$599.95
Omnirax	Producer's Corner	5-piece audio/video suite	36.2"Hx37"Dx120.6"W	Workstation suite for audio/video editing; room for multiple video monitors and close fields; 28 total rack spaces; space for CPU in enclosed cabinet	$1,299.95
Omnirax	ProStation	Digital audio workstation	44"Hx36"Dx2.25"W	Ergonomically designed; room for computer and close-field monitors; 30 total rackspaces	$899.95
Omnirax	ProStation Jr.	Digital audio workstation	42.5"Hx29.5"Dx60.5"W	Ergonomically designed; room for computer and close-field monitors; 14 total rackspaces	$699.95
Omnirax	ProStation Junior M/C	Keyboard, composing workstation	43"Hx29.5"Dx60.5"W	Compact workstation for keyboard composing; room for computer and close-field monitors; 12 total rackspaces	$659.95
Omnirax	ProStation M/C	Keyboard, composing, mixing workstation	45.5"Hx36"Dx72.25"W	Perfect for either mixing boards or keyboard composing; room for computer and close-field monitors; 26 total rackspaces	$849.95
Omnirax	Sidekick	Rolling Workstation	44"Hx24.9"Dx20.6"W	Versatile studio companion piece has 13 rack spaces and space for controllers and peripherals	$324.95
Omnirax	Synergy Series Consoles	Synergy 600, Synergy 800, Synergy 1000 console workstation for multiple mixers	41.625"Hx42"Dx101.6"–124"W	Designed to fit Mackie, Yamaha, Soundcraft, Ramsa, and other mixing boards in single and multiple configurations; all include padded wrist rest, and a minimum of 12 rackspaces in a sleek, expansive station	$900–$1,800
Omnirax	Synthrax 88	Multiple keyboard housing and 30 rackspace	49"Hx24"Dx60.5"W	Perfect for three 88-note synthesizers on sliding, locking shelves; 30 rackspaces below	$824.95
Omnirax	Tyro	Ultracompact keyboard/ computer workstation	34"Hx23.75"Dx45.25"W	For keyboards up to 43" wide; piano shelf slides out and locks in place; computer keyboard also slides out and locks in place; 12 rackspaces	$624.95
Per Madsen Design	The RACKIT System 19	Equipment and media storage units	Variable heights x20.75"Wx16"D	Modular, stackable oak units hold all recording formats and A/V components	$35–$295 per unit
Quik-Lok	Z-200	Workstation for computer and music equipment	Main shelf: 43.5"Wx21.75"D; top shelf: 37.8"Wx17"D; main shelf height from floor: 27"; top shelf height from floor: 36"	Computer welded-steel frame; laminate tops; expandable, sleek modern design	$299.95
Quik-Lok	Z-500C	Workstation for computer and music equipment	Main shelf: 42"Wx24"D; top shelf: 13"Wx13"D; monitor shelves: 11.75"Wx11.75"D; main shelf height from floor: adjustable to 27", 28", 29"; top shelf height from floor: adjustable to 35", 36", 37"	Computer welded-steel frame; mica laminate tops; expandable, sleek modern design	$379.95
Quik-Lok	Z-500M	Workstation for computer and music equipment	Main shelf: 53"Wx24"D; monitor shelves: 11.75"Wx11.75"D main shelf height from floor: adjustable to 27", 28", 29";	Computer welded-steel frame; mica laminate tops; expandable, sleek modern design	$349.95
Quik-Lok	Z-544	Project station for computer and music equipment	Main shelf: 40"Wx27"D; monitor shelves: 11.7"Wx11.75"D; main shelf height from floor: adjustable to 27", 28", 29"	Computer welded-steel frame; laminate top; expandable, sleek modern design; wide range of options	$279.95
Quik-Lok	Z-555	Project station for computer and music equipment	Main shelf: 51"Wx27"D; monitor shelves: 11.75"Wx11.75"D; main shelf height from floor: adjustable to 27", 28", 29"	Computer welded-steel frame; laminate top; expandable, sleek modern design; wide range of options	$299.95
Quik-Lok	Z-700	Workstation for computer and music equipment	Left or right angle lower shelf: 52.25"Wx21.75"D; top shelf: 37.8"Wx17"D; main shelf height from floor: 27"; top shelf height from floor: 36"	Computer welded-steel frame; laminate tops; expandable, sleek modern design; optional pull-out shelf available	$349.95

STUDIO FURNITURE

Manufacturer	Model	Type	Dimensions	Special Features	Price
Rackcraft	The Desktop Studio Rack	Black laminated melamine board/T-mold edging	25.5"Hx29"Dx48.16"	Desktop design; 20 rackspaces; ideal for Mackie ADAT studio with effects and monitors	$299
Shedworks		Electronic music modular workstations	22"Wx28"Hx24"D rolling racks; 60" or 72" tabletops	All systems are custom configured	$500–$2,500
Taytrix		12-, 14- and 16-rackspace units	29.5"–32"Hx16.5"–23"D; fits 19" standard gear	Available in square-front design or unique front-angle design; maple or cherry furniture-grade plywood	Starts at $300; countertop racks start at $117
Taytrix		Counter tops	Vary	Straight, angle wing, corner units	Starts at $30 per sq. ft.
Ultimate Support	HS26BP	Studio-organizer stand	Floor space: 19"x38"; surface: 16"x35.5"	Large work surface; center tier and side, arms to support gear; many accessories available	$268
Ultimate Support	HS36BP	Studio-organizer stand	Floor space: 17"x45"; Surface: 16"x18"	Versatile design; acrylic work surface; side extension (HE48B, $135.50); accessories available	$322
Ultimate Support	MS36	Studio-monitor stand	height: 36", top plate 9"x9", triangle base diameter: 14"	Sleek design, cable management, triangle cast zinc base; available in silver, black, and pewter	$210 pair
Ultimate Support	MS45	Studio-monitor stand	height: 45", top plate 9"x9", triangle base diameter: 14"	Sleek design, cable management, triangle cast zinc base; available in silver, black, and pewter	$230 pair
Wenger		Computer/synthesizer workstation	48"x37"x32"	Flexible, ergonomic, cockpit-like design; durable steel and wood frame; unique cord-management system organizes and conceals cables and power cords; 15-outlet power strip	$1,056

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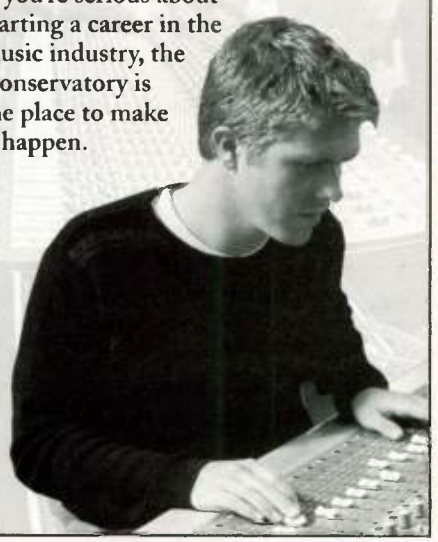

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SYNCHRONIZERS

Manufacturer	Model	SMPTE	Jam Sync	Freewheeling	MTC/MMC	Special Features	Price
Aardvark	AardSync II	No	N/A	N/A	No/no	Low-jitter word-clock sync generator; eliminates clicks & pops; locks to video sync; generates PAL & NTSC black burst; supports all sample rates	$1,695
Aardvark	Sync DA/Word Clock Distribution Amp	No	N/A	N/A	No/no	Generates word clock from AES/EBU digital audio; 5 WC outputs; supports Digidesign 256 Superclock	$795
Alesis	BRC Master	24, 25, 29.97 Remote Control	No 29.97d 30, 30d	Yes	Yes/Yes	Connects directly to ADAT, video in, word-clock I/O	$1,499
Audio Engineering Associates	CB Electronics MC-1	All	Yes	Yes	No/No	Serial 9-pin and parallel control for simultaneous control of 35 mm film dubbers (biphase) and time-code driver DAWs, etc.	$7,945
Digidesign	SMPTE Slave Driver (SSD)	LTC, all rates	No	No	Yes/No	Resolves sample clock to free-running LTC; generates SMPTE (LTC) 44.1 kHz or 48 kHz sample rates, with pull-up/down; high-fidelity, low-jitter Apogee clock	$1,295
Digidesign	Universal Slave Driver (USD)	LTC, VITC, biphase, pilot tone	Yes	Yes	Yes/No	Near sample-accurate lock; high fidelity; pull-up/down; window burn	$1,995
Digidesign	Video Slave Driver (VSD)	VITC	No	No	No/No	NTSC or PAL; resolves sample clock to video black	$995
Independent Audio	Motionworks R2P2	Remote Control	All frame rates	Yes	Yes/Yes	Controls over 200 machines with Sony 9-pin serial controls	$1,399
JLCooper	dataMASTER	All	Yes (adjustable)	Yes (adjustable)	Yes/Yes	Allows ADAT to sync to other tape machines or computer-based editing systems via SMPTE or MIDI Time Code; ADAT can be either master or slave to SMPTE or MTC; with the inclusion of MIDI Machine Control, can integrate ADAT's digital audio into virtually any professional audio/video application	$649.95
JLCooper	dataSYNC	All	No	No	Yes/Yes	Connects to ADAT, provides time code to drive sequencers and workstations without wasting track; can send MTC, SMPTE, or MIDI Clock with Song Position Pointer; complete variable tempo and meter data sent without restrictions of other products; bidirectional MIDI communication	$299.95
JLCooper	MMC/9 Pin	All	Yes	Yes	Yes/Yes	An innovative device capable of controlling 9-pin compatible video tape recorders from MMC compatible computer based sequencers and digital editing systems	$499.95
JLCooper	PPS-100	All	No	No	Yes/No	Locks MIDI sequencers and drum machines to SMPTE using MIDI Clock with Song Position Pointer, MTC, or DTL; Event Generator can be programmed to send any type of MIDI and can trigger MIDI devices; software for Macintosh, Windows, and Atari also available	$449.95
JLCooper	PPS-2	All	Yes	Yes	Yes/No	Reads and generates SMPTE time code and converts SMPTE into MTC or Direct Time Lock; PPS-2 plus option allows MTC to LTC conversion ($49.95 extra); software for Macintosh, Windows, and Atari also available	$169.95
Mark of the Unicorn	Digital Timepiece	LTC, VITC, MTC, 24, 25, 29.97, 29.97d, 30, 30d	Yes	Yes (adjustable)	Yes/Yes	Reads/generates all standard forms of word clock and time code; reads/generates ADAT sync, DA-88 sync, and Sony 9-pin machine control; reads/generates video; supports Digidesign Superclock for ProTools; 0.1% pull-up/down sample rates at 44.1 and 48 kHz; reads/generates S/PDIF sync	$995
Mark of the Unicorn	MIDI Timepiece AV	LTC and MTC, all rates	Yes	Yes	Yes/Yes	Complete networkable MIDI interface; syncs ADAT to SMPTE, MTC, and video without BRC; word-clock output for synching digital audio to SMPTE, MTC, and video; slaves Pro Tools to SMPTE, MTC, and video; supports MMC; please see MIDI Interface chart for additional information	$595
Midiman	Smartsync	None	No	No	Yes/No	Converts Song Pointer sync (Smart FSK) to MIDI Clock	$134.95
Midiman	Syncman	24, 25, 30, 30d	Yes	No	Yes/No	Syncs sequencers, drum machines, and MIDI lighting controllers to tape or video decks	$199.95
Midiman	Syncman Plus	24, 25, 30, 30d	Yes	No	Yes/No	SMPTE to Song Pointer conversion; allows any non-SMPTE-capable sequencer to be synched to SMPTE	$249.95
Midiman	Syncman Pro	24, 25, 29.97, 29.97d, 30, 30d	Yes	Yes	Yes/Yes	Rack-mount version with digital LED readout; spotlocks video; handles all forms of SMPTE, MTC, and direct lock	$399.95
Opcode	Studio 64XTC	All	Yes	Yes	Yes/Yes	ADAT sync, simultaneous word-clock and Superclock out, video/black burst reference in, reads/writes SMPTE, converts SMPTE to MTC, routes MMC and MTC, optional Sony 9-pin sync expansion; full OMS support; please see MIDI Interface chart for additional information	$495
Steinberg	ACI ADAT	None	No	No	Yes/Yes	Sync computer to ADAT without sacrificing audio track	$399
TASCAM	ES-60	All	Yes	Yes	No/No		$1,499
TimeLine	Lynx-2	24, 25, 29.97, 29.97d, 30, 30d	Yes	Yes	Yes/No	Cross-frame synchronization; film-card option available	$2,995
TimeLine	MICROLYNX	24, 25, 29.97, 29.97d, 30, 30d	Yes	Yes	Yes/No	Audio clock-generator option card generates Superclock for synching to Pro Tools workstations; VITC-reader card available; price includes two-machine synchronizer plus keyboard controller	$2,995

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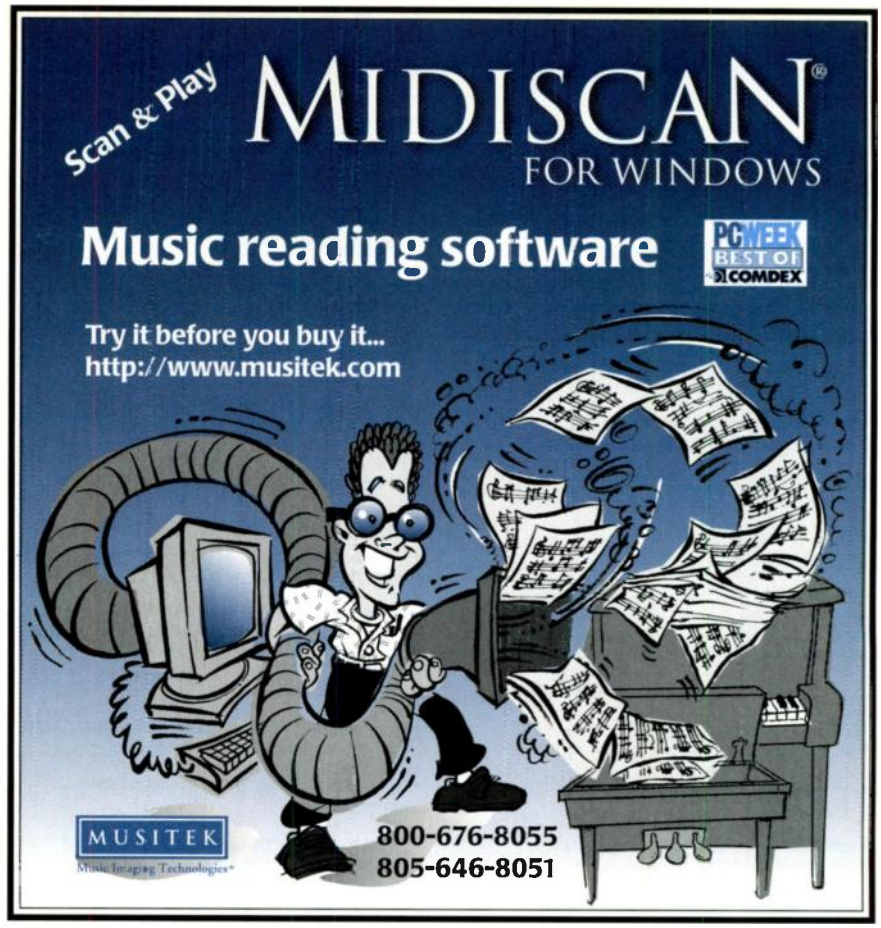

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