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OCTOBER 1993 OORE THAN
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## THE RM3000. FROM THE SPEAKER SPECIALISTS <br> роीзณைた



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The Cover Equipment: On Arcici Levitation stand, from top to bottom: Sony MZ-1 MiniDisc Walkman, Denon TU-680NAB tuner, Krell KRC preamp, SOTA Vanguard CD player, Technics RS-DC10 DCC recorder; right, Mavrick Non-Speaker.

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## FAST FORE-WORD



Went down to Hi-Fi Circus, the FUN Electronics Store. Wanted a new preamp they were selling for four figures. Since my stash is never above two figures, I had to do some clever figuring.

Maybe, I thought, the manager would take my preamp as a trade-in. But even with a generous allowance, the new beauty would still cost me four figures.

Hi-Fi Circus sells records, and I'd heard they dealt in used CDs, giving between $\$ 3$ and $\$ 5$ for them. Maybe I could trade in some of my collection of promo CDs?

When I got the two dozen shopping bags down to Hi-Fi Circus, the manager saw me coming. Before I got through the door, he yelled, "Don't bring those things in here. I can't take promo CDs with holes drilled in the jewel cases." All I could say was, "Well, let's negotiate."
It turned out that the record companies had pulled the plug on my friend's co-op advertising. They were unhappy with many record stores for taking discs as trade-ins and, in some cases, buying them outright. It seemed all of the Big Record Companies, save for BMG and PolyGram, were putting the pressure on. In return, a couple of the stores had filed lawsuits claiming anti-trust violations; the FTC is interested as well.

The way the owner of $\mathrm{Hi}-\mathrm{Fi}$ Circus sees it, the Record Company Czars can't tell
the difference between the ownership of the CD and the copyright to the song. That is, while a certain song would always be written by Irving Berlin, the CD might be owned by you or me or one of the Czars. Therefore, the title TO the CD (as opposed to the title OF the song) could pass from you to me or even to one of the Czars. To my friend, it was as if the Czars wanted to collect twice if two people listened to the disc.

Why is my friend from Hi-Fi Circus upset about the loss of some minor advertising money? Well, co-op ad money is cheaper than regular ad money, since some comes from the manufacturer, here the record company, so getting people into the store is cheaper. This is much needed since things in the mom \& pop record stores are really tough.

For their part, the record companies claim selling used CDs costs them sales of new ones. This seems like admitting prices of new CDs are too high. Frankly, I can't see where the sales are being lost; they look to me like sales that otherwise would never be made.

From where I sit, this is just another difference between branded products and commodities. The Record Czars appear to think that there shouldn't be any value in a used product. Well, friends, jewel cases house jewels, things that last and have intrinsic value. It isn't like a bread wrapper where the product inside has a short shelf life during which it had best be used up.

I never did get my preamp, and I didn't get rid of my promo $C D$ collection either. Maybe I'll have to trade them at a flea market to someone who happens to have that preamp. And who knows the difference between the title to a record and the title of a song.



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## SIGNALS \& NOISE

## DCC Is Misunderstood

## Dear Editor:

J. Patrick McGrail's letter regarding DAT versus DCC (March) illustrates the difference between the professional and the consumer markets. DAT is excellent for capturing samples or for achival storagehowever, as a consumer format it is a failure. Legal hassles certainly hampered DAT's introduction. Also, there was little competition among manufacturers, and low volumes kept prices high.

Another issue affecting DAT was its early development. Two formats were considered: Stationary-Head DAT (S-DAT) and Rotary-Head DAT (R-DAT). S-DAT was potentially compatible with existing cassette tapes, but limitations in bandwidth and head technology were major hurdles. R-DAT's rotating head, based on VCR technology, provided for sufficient band-width-and so R-DAT won because it could be brought to market more quickly. Yet it appears that work continued on SDAT. Today, DCC-through data compression and advancements in head tech-nology-seems to be what S-DAT was leading to.

DCC may be the ideal recording format for the consumer market. Initial reviews indicate that it sounds great. Rather than adding another component, consumers can replace their existing cassette decks, since tape libraries remain playable. Retail music displays do not need to be changed (wasteful CD longboxes were the result of complaints by retailers). Existing cassette carrying and storage cases can be used, cassette slots in cars do not need to be retooled, etc.

It seems ironic that digital audio supporters would reject DCC, outraged by the idea of large corporations making arbitrary decisions about what can and can't be heard. These same people have already accepted this situation with existing digital audio. Sound has infinite amplitude resolution and anlimited bandwidth. For the CD standard, large corporations (notably Philips, developer of DCC) arbitrarily decided that sound could be packaged into

65,536 amplitudes and a $20-\mathrm{kHz}$ bandwidth. This was based on studies indicating that differences between the original sound and this standard were inaudible. Sound familiar?

Bob Yannes
Newtown Square, Pa.

## DCC and MD Are Misbegotten

Dear Editor:
I agree completely with Mr. McGrail's letter. The MD and DCC formats are products of misdirected marketing.

MD is said not to replace CD, but rather to provide a complementary format. However, it is unclear to me how MD is so much more convenient that we are to accept its sonic compromises. The prerecorded MDs available in Seattle cost more than their CD counterparts, and the blank MDs are more expensive than any tape format save DCC.

DCC is an advance in audio art only insomuch as its engineers have proved they can produce a transport that plays both analog and data-compressed digital cassettes. The sonic quality of DCC will always be questioned because of the data-compression technique utilized. More important, I question the long-term reliability of DCC's tape transport, as it is asked to play both analog and digital software from a fixed head. Such transports will always be expensive to produce.

The digital recording field, at least at the semiprofessional and audiophile levels, is already occupied by DAT. My DAT deck records perfectly and economically on conveniently sized cassettes that hold up to 160 minutes of music. I frankly don't know why any of your readers, who presumably are interested in the best possible fidelity, need look further than DAT.

Ray Warns Seattle, Wash.

## Errata

The table in "Lowdown on Subwoofers" by R. A. Greiner, which appeared on page 40 of the August issue, contained an error.

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## Dynaco Equipment Needed <br> Dear Editor:

The output transformer in one of my Dynaco Mk III (!) amps has "died"-more specifically, there is a short in the primary windings-and because of its age, I've been unable to find a source for a replacement. If any Audio reader has a transformer or a complete amp for sale, may I ask that they get in touch with me.
I've been a subscriber since 1955! Keep up the great work.

Richard S. Loveland<br>11740 Bacon Race Rd.<br>Woodbridge, Va. 22192<br>(703) 590-6205

## For Shure

Dear Editor:
Shure has recently taught me that the total quality concept-as embodied in product, service, and corporate commit-ment-is very much alive in Evanston, Illinois, even as it disappears to the fast buck in other large companies. Sparing you the details, let me just say that Shure demonstrated they cared very much about my satisfaction.

I started with Dynakits and Heathkits; I've been around awhile. I can understand now why Shure has too. Kudos to Shure and their service manager.

John Vaeth
Derwood, Md.

## Lirpa? Muzzle!

Dear Editor:
As an Audio subscriber for many years, I both enjoy and truly look forward to each issue I receive. Your publication is well written, covers a variety of important issues, reviews a wide range of audio equipment, and in my opinion truly advances the overall music-listening experience. Why then do you feel compelled to devote precious space in your magazine to the inane ramblings of Prof. Lirpa and his equipment?

With the increasing amount of equipment produced each year and so few magazines to competently review it-as well as the endless wealth of new recordings-and

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considering the depth of your technical articles and the insightfulness of your interviews with musical innovators, why do you choose each April to waste four or five pages of valuable space on pure nonsense? (And that is not to mention the letters from subscribers debating the technical merits or failings of the latest Lirpa product.)

I enjoy humor as much as anyone, but when it takes the place of a product review or other piece of insightful journalism, I can only ask that a sense of rationality limit the good professor to a smaller portion of the magazine's pages.

David A. Hinshelwood
Homewood, Ill.

## Lirpa? Huzzah!

Dear Editor:
I was most interested in the letter in the April issue concerning the redoubtable Prof. Lirpa's development of a dynamic listening room, the boundaries of which moved as required to maintain a stable sound field at the ears of a listener even as he rocked in a chair. Major as this achievement was, the good professor indeed outdid it in his solid-state digital implementation of the process.

This brought to mind the pioneering work in a somewhat related field by a gentleman named Bradford, back in the late 1950s. The ultimate commercial realization of his efforts was the Bradford "Perfect" Baffle, which automatically provided "correct speaker damping" by a "pressure relief valve" in the rear of the enclosure. This enclosure, a compact 12 inches square by 9 inches deep, could accommodate a 12 inch speaker (which must have required a shoehorn for installation) and had a hinged door in the back, which responded to a rearward movement of the speaker cone by swinging open to relieve the internal pressure. This presumably emulated a dynamically variable-volume enclosure that served as a truly infinite baffle. Selling for a mere $\$ 34.50$ (according to the 1959 Ziff-Davis Hi-Fi Buyers' Guide and Directory), it must have been the bargain of the century.

Mr. Bradford was born a few decades too soon. Today I can imagine a fast-acting servo, operating from the electrical signal, that would swing the door as required, just before the internal pressure would have increased. It boggles the mind to consider
the possibilities of this technique. Perhaps the equivalent action ultimately could have been achieved by purely digital means.

Alas, Mr. Bradford apparently ran afoul of the authorities before the fruits of his invention could be reaped. During his incarceration, his company disappeared, leaving behind an unknown number of unfortunate owners of the Bradford "Perfect" Baffle. I suspect that the only practical application of any possibly surviving model would be as a housing for a small dog or cat, or perhaps a squirrel or a very large hamster,
giving the fortunate occupant ready access to its home or to the great outdoors without human assistance.

Although Mr. Bradford failed, by a small margin, to make a seminal contribution to acoustics and loudspeaker design, it is encouraging to know that Prof. Lirpa is carrying on his tradition. I trust that we will continue to hear of his momentous technological breakthroughs for years to come.

Julian D. Hirsch
Hirsch-Houck Laboratories
New Rochelle, N.Y.


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## TAPE GUIDE

HERMAN BURSTEIN

## Fading from the Head

Q. Every once in a while, when I play a tape its sound fades in and out. This happens more with some tapes than with others. What is the problem, and how can I prevent it from happening to all my tapes?-Steve Tout, Anderson, Cal.
A. Your letter doesn't indicate whether your problem tapes always fade in and out or whether it happens only some of the time. If the latter, perhaps the tape is not making good contact with your deck's playback head. This could be due to dirt on the head, faulty shell mechanisms, or head wear. If the problem happens all the time, it could be due to the tape having lost part of its magnetic coating or to partial erasure caused by the tape's exposure to a magnetic field.

It may be time to have your deck checked for proper performance, including that of its heads.

## Choosing a Tape Type

Q. I still don't understand the relative merits and appropriate uses for the several types of cassettes, namely Types I, II, and IV. Where can I learn what I need to know about selecting tape types for recording music? Primarily I record FM broadcasts and transfer selected portions of these to dubbings.

I suspect that many Type I tapes are superior to their heavily marketed Type II counterparts. Yet the marketing/advertising strategy appears to be to convince the consumer to "step up" to the higher priced Type II tapes. I have even noticed that it is difficult to find the superior Type I tapes disclosed in Audio's March 1990 tests. Are manufacturers out to discontinue these excellent tapes in order to sell only the worst of the Type I variety, thereby reinforcing the myth that Type II is naturally better than Type I? Do you think we are being manipulated by the tape marketers?-Jon R. Koppenhoefer, Springfield, OH
A. I don't believe that certain tape types are better than other tape types for particular kinds of music. However, for live recording, metal tape may be superior be-
cause of its ability to accommodate a wide dynamic range in the treble spectrum at high recording levels.

Some years ago the ranking of tape types in order of quality, from lowest to highest, was Type I (ferric oxide), Type II (chromium dioxide, ferricobalt, or some few metal tapes that take approximately the same bias as chrome tapes), and Type IV (metal particle). When it comes to extended highfrequency response at high recording level, Type IV is still distinctly best. In recent years, some Type I tapes were improved to the point of surpassing some Type II tapes, so that a number of Type Is are best buys. As to which they are, you have to discover that by reading articles such as Ed Foster's more recent (June 1993) roundup, talking to knowledgeable persons, and experimenting for yourself.

So your suspicion is correct: Some Type I tapes are better than some Type IIs. And, yes, marketing strategy is a factor you have to contend with in buying tapes, just as you have to do with almost any other consumer product.

If you are having trouble finding sources of the tapes you wish to buy, try some of the mail-order houses. Also, call or write retailers in your locality.

## Knobs and Rockers

A reader who has requested anonymity, and that his letter not be published verbatim, dislikes mechanical controls, particularly potentiometers. Instead he favors sol-id-state attenuators and other controls for volume, recording level, tuning, etc., ones typically operated by rockers or buttons, rather than rotary devices. He finds them more reliable, that is, failure-proof. My reply is as follows: First, there are good mechanical controls and poor (usually cheap) ones. In my $40+$ years of owning a variety of good (but not necessarily highend) audio components, I have experienced only one failure of a mechanical control for volume, tone, balance, etc. Actually it wasn't a failure, it was simply that the two sections of a stereo volume control
were not tracking adequately; it had two sections, one for each channel, and the two normally moved together via a defeatable clutch. I could have lived with it.

Second, a knob, as contrasted with a push-bar or such, offers a visible index of one's volume, tone, balance, etc., setting. It facilitates returning to a desired setting. If you read equipment reviews extensively, you will have noted that from time to time a reviewer will deplore the absence of a rotary control for a purpose he considers better served by such a control.

## Enhancer/Expander? What's That?

Q. I recently became the owner of a dynamic range enhancer. It was a gift, and I believe that the giver had as much knowledge of the device as I have-nothing. It sounds like an impressive device, but just what is it, and what does it enhance?-Joseph A. Fahrner, Orchard Park, N.Y.
A. The purpose of a dynamic range expander (or enhancer) is to increase the contrast (or difference in loudness) between the loudest and softest sounds in an effort to make the program material, particularly music, sound more realistic. On many phono records, radio broadcasts, and cassettes, the dynamic range between the loudest and softest sounds has been artificially reduced, or "compressed." This is done either to fit program material with a wide dynamic range onto a medium that would otherwise have trouble accommodating it or (particularly in radio) to make the sound seem more "punchy." An expander, particularly if it can be adjusted to match the degree of compression originally used, can restore the range to something like its original value. It won't be much use on CDs, however, because their dynamic range is usually wide enough for the program material. In fact, some listeners complain that the Compact Disc's dynamic range is too wide, making its softest sounds inaudible when volume is turned down to keep the loudest sounds at a tolerable level for the home.

[^1]

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After you have tried your dynamic range expander for a while, you may find that you are happier without it, particularly if you like sound reproduction at moderate levels.

If you want more information about the best uses of your unit, write to the manufacturer.

## Setting the Record Level

Q. My cassette deck has a typical LED meter for setting record level. It has markings from -6 to $+6 d B$ in $2-d B$ increments, with 0 at the center point. I have been setting the record level so that the loudest passages stay at or below 0-that is, out of the red. But the instruction manual suggests setting level so that the loudest passages occasionally light up the meter at +2 for Type II tapes and at +6 for Type IV tapes. Which procedure do you think is best, mine or the manual's?-Bill Ehret, Austin, Tex.
A. It seems that you have been recording at somewhat too low a level from the view of optimizing performance. You want to maximize $\mathrm{S} / \mathrm{N}$ without running into noticeable distortion or treble loss. On most meters, 0 dB corresponds to either DIN or Dolby level (the latter roughly 1 dB lower than DIN), whereas the level at which distortion and/or treble loss become noticeable is several $d B$ higher. (How much higher varies with the type and brand of tape; it is usually highest for Type IV, or metal, tape.)

Accordingly, I recommend that you follow your manual. On the other hand, for the given tape type and brand you are using, it is advisable to check how high a level you can record at before distortion and/or treble loss become audible. Conceivably this could be above +2 in the case of a Type II tape and above +6 in the case of a Type IV tape. Then, back down a couple of dB or so to provide a safety margin.

Even though you have been recording at too low a level, the only harm done is to signal-to-noise ratio. Considering the high S/N achievable with Dolby C NR-better than 70 dB -losing something like 2 to 6 dB of $\mathrm{S} / \mathrm{N}$ is not disastrous. It probably is not noticeable unless you play at very loud average levels, and then only in quiet passages. At the same time, by sacrificing several $d B$ of $S / N$, you have insured lower distortion and better treble response.

## Ancient Acetates

Q. Several months ago, I hauled out some 35-year-old acetate tapes to dub onto DAT. These were half-track mono, on large reels, recorded at $71 / 2$ and 15 ips. I dubbed $1 \frac{1}{2}$ reels and then stopped, because I realized they had been recorded a bit slow and my Tandberg open-reel deck doesn't have variable speed. More recently, I borrowed a Revox that does have variable speed and resumed dubbing. The tapes I had not played for years were okay, but the $1 / 12$ reels I had played several months earlier were now badly cupped, seemed to bounce as they went over the heads, and refused to wind tightly onto the take-up reel. In fact, instead of winding in a circle, they wound in a loose square.

What caused these problems, and why did they only affect the tapes I had recently played? What can I do to make these tapes playable again, even if only once?-Ivan Berger, Technical Editor, Audio
A. I can only make stabs at answers to your questions. It seems that in their years of storage, the ancient acetates accumulated physical stresses that did not display themselves so long as the tapes were tightly packed. If the tapes were rapidly rewound just prior to their long storage, the stresses might have been intensified. Once these tapes were played, the stresses were able to manifest themselves, with the tape refusing to pack tightly and circularly. If the tapes were rapidly rewound prior to restorage recently, matters might have been made worse.

Try putting the problem tapes through several fast winds and rewinds to see if this relieves the stresses enough to permit smooth, tight packing-or at least enough to permit successful play. If this doesn't work, try winding and rewinding the tape at operating speed; you will have to find other things to do in the meantime.

There are, or were, devices for manually winding motion picture film. I believe they can also accommodate tape reels. Perhaps you can locate one of these and manually wind the tape to achieve a good pack, immediately followed by playback.

Another expedient is not to use a takeup reel in playback, but to let the tape drop into a bin of some sort. This assumes that the tension exerted by the take-up reel is not an essential part of maintaining good tape-to-head contact in your deck.

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## Digital Delay

Q. I have heard of digital recording, but what is digital delay?-Eric Wong, New York, N.Y.
A. Delay is used in audio playback to add ambience, either by simulating hall reflections in playback of true stereo recordings or to make surround systems (such as Dolby Surround) work properly. The signal is fed into one end of the delay and emerges some milliseconds later. Both analog and digital delay systems exist; for the latter, analog signals must be converted to digital form by an A/D converter, and the output must go through a D/A converter after the delay.

## Mysterious FM Meter Movements

Q. I have just purchased a new tuner. As I hoped, it works much, much better than the one it replaced. Under certain weather conditions, the "signal quality" meter drops from $60 \%$ to $30 \%$ over a period of 5 to 10 minutes. This seems to happen on all stations.

Here is an even stranger thing. If I switch to my second antenna and then immediately back to the first, or main antenna, the reading again goes back to $60 \%$ and then slowly drops back to $30 \%$. The audio quality in no way deteriorates. All of this seems odd to me. Do you think this is normal?-Gerry Masters, Lacey, Wash.
A. To begin, I really don't know whether your "signal quality" meter registers signal strength, multipath distortion, or some combination of the two. Under some weather conditions, multipath can be increased by odd reflections from the ionosphere. If it increases enough, it could result in audible distortion. However, I don't think weather is involved here.

Weather conditions don't change during the brief time you switch from your main to your second antenna and back again. In all likelihood, something in the tuner recovers during the switch-over, and the meter reads higher for a short time before slipping back again, which means the meter circuitry is probably not operating as it should.

However, if the "signal quality" shown on the meter is being computed rather than read directly, it may take the computer time to make up its mind after a sudden change in signal strength or a switch between antennas. And if there are days when the meter does not change, it's just possible that the weather is affecting your system and your meter is really telling you something. Before sending the tuner to a service shop, recheck the instruction book to see what it has to say about all this.

## Display Problem

Q. My receiver has a blue digital display, featuring a clock that always shows the time even when the receiver is turned off. When the receiver is on, various displays are also lit. So far, so good. But when I turn the receiver off, these other displays are still lit, although very dimly. Is it something to be concerned about?-Mark D. Mina, Anaheim, Cal.
A. Although I don't think there is anything to be concerned about, I do not think it is normal for your display to show any function other than the time if the receiver is turned off. I suppose there is a single IC that supplies all functions of your display. It may be defective. On the other hand, this effect may simply be due to light leakage from the active parts of the display.

## Directional Cables

Q. Many of the audio interconnect cables are said to be directional. One end is marked specifically as "output" and the other is "input."

I unscrewed the phono plugs on such a cable and discovered a wire that ran along the shielding and was soldered to the ground on the output end of the cable. This same wire was not attached to the input side of the cable. I assume that this construction is what

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[^3]determines whether or not the cable is "directional." Can you explain in layman's terms the principle behind using such cables and what it accomplishes?- Bill Szymanski, Hartford, Conn.
A. Cables that are marked as to which end supplies output and which supplies input can be a valuable addition to many sound systems. As your examination has shown you, the shield is not connected to both ends as it is in conventional cables. The wire that you indicated as "running along the shield" is, in fact, the shield
connection and is in intimate connection with the shield. Such "drain wires" are often used with foil shields, which cannot be soldered. Usually, "directional" cables use a second signal conductor (which is twisted along with the usual center one) to carry the signal.

The output end of the cable (the end that has the shield attached) is the end usually connected to the imput of the device being served by the cable.

Because the shield is not connected at both ends, ground loops that can induce


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hum into conventional cables are eliminated. Of course, ground loops can form in the ground conductor.

There is no sonic difference between directional cables and conventional cables. Thus, if you have no hum problems with standard types, you don't need directional cables.

You can make up your own directional cables by obtaining cable that contains two conductors plus a shield, along with the phono connectors. Follow the wiring arrangements as you have described them. Use the color-coded wire to be sure that you don't mix up ground and hot leads. Be sure to mark the connectors as to which is which. If you accidentally reverse the cables end for end, they'll still work, but there may be a bit more hum present under some conditions.

## Power Line FM Antennas

Q. I live in a steel-studded building and am not permitted to use an outdoor $F M$ antenma. Reception of stations 35 miles away is poor. Some time ago I saw advertisements for FM antennas that plug into electrical outlets and utilize the internal house wiring of the building as a "giant antenna." I would like to order one, but I cannot find any of these ads now. Can you help?-Morton Reitman, Frederick, Md.
A. I really do not believe that you will find these so-called "giant antennas" useful. At frequencies used for FM transmissions, the power line has so much shunt capacitance to ground and so much inductance that the desired signals will be prevented from entering your tuner's input.

Your letter tells me that at least some signal is present in your home, probably entering through windows. Try to find a location for your antenna that permits good reception of your most desired stations. I am sure that you still will have some problems, but there are some active antennas that have good booster amplifiers and are directional. I have never used one of these, but they seem to be the best solution to your problem.
(Editor's Note: I've tried power-line antennas without success. In New York City, where the air is full of signals and of multipath, powered antennas tend to add a few dB of noise, though that might not be audible on all tuners.-I.B.)


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## BERT WHYTE

## BALANCING ACT



FM Acoustics' Resolution Series 222 phono unit can be powered by the 266 preamp (trop). An access plate (above) covers input copacitonce anc resistonce swithes. Interior loyout (botlom right) is dean and uncluttered.

A$s$ we begin the second "Digital Decade," we should note that for millions of people, the preferred mu-sic-storage format is still the venerable $331 / 3$-rpm long-playing vinyl phonograph record. The audiophile segment of this group is very vocal, rarely missing an opportunity to condemn digital audio for its "sterile, clinical sound." Quite obviously, the digital/analog controversy will continue for the foreseeable future.
For now, as is well known, all major record labels and most of the smaller record companies no longer
produce vinyl records, beaving the vinyl enthusiast to choose only from older recordings. These do constitute a vast library-near-y 40 years of recordings in every musical category. Many of these arz available from dealers specializing in vinyl. It is unlikely that there will be any shortage of LPs; so many audiophiles have converted to digital CD and sold their vinyl collections to these specialty dealers, there is an oversupply of them.
I have given away or sold thousands of LPs but kept a core library of favorite recordings and all of the Everest and Crystal Clear recordings I engineered. While it is very pleasurable to play these LPs, I admit that the basic fragility of the medium means treating them with tender loving care. With an interface of diamond stylus and soft vinyl, groove wear is an implacable enemy.

For some time now, I have wanted to transfer my Everest and Crystal Clear vinyls to a digital format,
where they would never be worn beyond the condition they were in at the time of the transfer. R-DAT looked like it would serve this purpose, but the advent of the recordable CD-R, with all the advantages of the CD format, was an obvious choice. Equally obvious is the fact that there is no point in committing a recording to CD-R, unless the playback of the vinyl recording is as optimal as the state of the art permits. While many audio equipment companies have stopped manufacturing turntables, arms, and cartridges, for those enthusiasts who can afford them, there is a whole new breed of ultra high-tech turntables and related phono playback equipment.

Part of the inspiration for this LP transfer project was the introduction of the FM Acoustics Resolution Series 222 Phono Linearizer/Preamplifier. This unit, just under $\$ 10,000$, is unique and remarkable as it provides special phono-playback facilities, some of which have hitherto been unavailable. Most significantly, with the FM 222, phono cartridges can be connected in balanced configuration! Manuel Huber, the president of FM Acoustics in Switzerland, told me he was going to make a very specialized phono-playback unit to be used in conjunction with his FM 266 preamplifier. (I reported on the FM 266 in the January 1992 issue of Audio.) When I told Mr. Huber about my LP transfer project, he was kind enough to send me an FM 222.

Harry Weissfeld is the head of VPI Industries whose turntables are noted for their reliability and sonic neutrality. He is also a very accommodating friend, and he supplied me


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with an HW-19MK IV turntable with a TNT platter, on a special plinth fitted with XLR connectors for balanced connections from a specially modified AudioQuest tonearm. I was going to use the superb Koetsu Onyx phono cartridge, but while the Onyx body shell is very rigid, it is also heavy, so Harry machined an extra counterweight to balance the cartridge. Throughout the entire transfer project, as well as for the sheer pleasure of playing all my old vinyl favorites, the VPI worked flawlessly.

All phono cartridges, whether moving magnet or moving coil, are balanced designs. In other words, their internal circuitry is not connected to ground (though many cartridges do have one output pin grounded, often by an external strap). However, the standard phono-cartridge connection practice uses RCA pin jacks in an unbalanced configuration, with one of the signal paths carried by the shield. This exposes the signal to extraneous interference which can then enter the audio circuitry through the phono input. Consid-

# Rule Breaker? 

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ule, for MC cartridges, provides capacitance settings of $0,0.7,1.5$, and $2.2 \mu \mathrm{~F}$, and resistance values of $36,45,90$, and 180 ohms. Modules for MM cartridges or for MC cartridges requiring custom values can be plugged in in place of the standard one.

The next switch on the front panel selects between records cut in the normal way or vertically cut mono records. (It is easy to determine the correct setting of this switch: The right setting will provide music. The incorrect setting will result in loud surface noise with little or no music.).

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> THERE IS A NEW BREED OF ULTRA HIGH-TECH TURNTABLES FOR THOSE AUDIOPHILES WHO CAN AFFORD THEM.
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The FM 222 is unique in my experience, with a host of features beyond those I have described. Next month we will detail its fabulous performance and how it interfaced with the other elements of my LP transfer project.

# The Critiçs Anfeel 

Whoever coined the phrase, "You only get what you pay for", probably never listened to Paradigm speakers.

For over a decade Paradigm has been bringing the pleasure of music to hundreds of thousands of listeners. Today Paradigm is one of the most highly acclaimed speaker brands with countless rave reviews and numerous Critic's Choice and Grand Prix Awards.

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With Paradigm you not only get state-of-the-art performance, you also get to spend a lot less! Just listen to what respected Audio Magazine reviewer D.B. Keele said about the Paradigm Studio Monitor:
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"Amazing performance... very open, uncolored, neutral... the Paradigm hung in there, outscoring some larger competitors many times its price. For sheer performance for your audio buck, this Paradigm's no "mini." Call this one a "maxi." Sound\&Vision Magazine (3se-mini)
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STRONGLY RECOMMENDED."
HiFi Heretic Magazine (3se)
"Paradigm loudspeakers have an excellent track record where listening tests are concerned... They have a free and uncoloured character wholly
 out of keeping with their humble price. These would be good value at considerably more money; at their selling price they are brilliant."
Stereo Buyer's Guide (3se) ... the [Paradigm] 5se is no more colored than speakers costing up to two or three times its price, and gave a consistently musical presentation... Conclusion: the Paradigm 5 se offers excellent performance at a very competitive price..." John Atkinson/Stereophile Vol. 11 No. I
"The Paradigm would be good at twice the price... Listening is an unusually pleasant experience because the speaker doesn't get in the way of the music.
A "MUST HEAR" before you buy your next pair of speakers."
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'A no-compromise two-way design capable of outperforming systems costing several times as much."
High Fidelity (9se)
"...Paradigm's already strong reputation is about to be further bolstered by the Compact Monitors. [They] have a breezy, open character... [with the] ability to plausibly recreate an acoustic [space]... AUDITION

## THESE."

Stereo Buyer's Guide
"natural-sounding... exceptionally smooth and extended... It's overall well-balanced. unified sound was what we would expect, but do not always hear, from any speaker in this price range."
Stereo Review (Export Monitor)
'Paradigm seems to have done what it takes to offer an exceptional speaker system... truly well controlled... the midrange is very open. We repeatedly had to ask ourselves how Paradigm is able to offer a system of this build quality that possesses such high class sound quality for such a low price."
Son HiFi (Studio Monitor)



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# Stereo Review 

JULIAN HIRSCH HIRSCH-HOUCK LABORATORIES

DESPITE its imposing name, the Canadian-made Paradigm Titan, just over a foot high and weighing a mere 10 pounds, is what is usually referred to as a "mini-speaker". A two-way system, it has a $6 / 2$-inch woofer operating in an 11-liter bass-reflex enclosure with a duct-loaded port. This bass/midrange driver manufactured by Paradigm, has a multilayer voice coil on a Kapton former and a polypropylene cone

The crossover to the Titan's $3 /-$ inch dome tweeter is through a second-order ( $12-\mathrm{dB}$-per-oclave) frequency corrected and phase-corrected network. The tweeter's polyamide dome, driven by a high-temperalure voice coil on an aluminum former, is damped and cooled by ferrofluid.

The edges of the grille are chamfered to match the front edges of the cabinet, minimizing diffraction that could disturb the speaker's stereo imaging. Since the grille is not removable, we were unable to examine the speaker's "specially designed front baffle," which is also said to help keep diffraction at a minimum. According to Paradigin, however, the woofer is mounted so its edge surround is flush with the baflle. The cabinet walls are high density particle-board and the enclosure is generously filled with acoustically absorbent material.

The Titan's specifications include an on-axis response of 75 to 20,000 $\mathrm{Hz} \pm 2 \mathrm{~dB}$ and a DINrated low-lrequency extension to 55 Hz (the approximate -3 dB frequency in a typical room). Sensilivity in a room is raled at 88 dB sound-pressure level (SPL) at I meter with an input of 2.83 volts, or 85 dB in an anechoic environment. Nominal impedance is 8 ohms. with a minimum of 4 ohms. The Titan is recommended for use with amplifiers rated between 15 and 100 walts. It is intended for placement on a bookshelf or stands.

## Lab Tests

With the speakers placed on 26 -inch stands about 8 feet apart and 2 to 3 feet from any walls, the room response above 350 Hz was very smooth and flat, within $\pm 3 \mathrm{~dB}$
> "Calling this speaker "Titan" is not as extravagant as one might think - it is truly a GIANT-SIZED VALUE."

...very smooth and flat... its frequency response ranks among the flattest that we have measured from a speaker.'
sounded every bit as good as its measurements would imply."
"... it is less common for a small speaker to avoid sounding thin when the program calls for a healthy bass output.
The Titan passed that test handily... it does such a skillful job... that the listener does not notice that all of the music is coming from the pint-sized Titans."
"The small size, in fact, gives the Titan a distinct advantage in imaging accuracy over many larger speakers... we have heard a few (very few!) speakers with a single 6 -inch woofer that can produce a similar effect, but they usually cost considerably more."
from 300 to $20,000 \mathrm{~Hz}$ and $\pm 1.5 \mathrm{~dB}$ from 350 to 11.500 Hz . The $200-$ to $300-\mathrm{Hz}$ range was elevated because of
 floor reflections, and the bass outpu was strong to below 60 Hz

The close-miked woofer response, combined with the port response, was unrealistically extended, as sometimes happens in this sort of measurement. Although the response seemed to extend to 20 Hz . the distortion in the port output al very low frequencies renders the measurement invalid in that range.

Several response measurements with pink noise at I meter (using either a sweeping band of noise or a constant noise spectrum with a sweeping one-third-octave lilter) produced generally similar and more realistic results. The speaker's output was constant within I or 2 dB from ahout 80 or $9(1 \mathrm{~Hz}$ to perhaps $2,000 \mathrm{~Hz}$ with a shallow depression of another decibel in the 4.000 - to $10,000-\mathrm{Hz}$ range and a return to midrange level: at $20,000 \mathrm{~Hz}$. Low-frequency response dropped off rapidly below 80 Hz, to -5 dB at 60 Hz and -17 dB at 40 Hz .

A quasi-anechoic FFT response measurement, valid above 300 Hz . confirmed the general shape of the ran-dom-noise measurement. $\mathrm{A} \pm 1 \mathrm{~dB}$ variation from $7(0)$ to 2.000 Hz was followed by a dip of 3104 dB between 6,000 and 9.000 Hz and a return to midrange levels. or perhaps 1 dB higher, from 10,000 to 20,000 Hz .

The change in output between the speaker's forward axis and 45 degrees off-axis was less than 3.5 dB below $1,000 \mathrm{~Hz}$, increasing to 4 or 5 dB hetween 1,200 and $7,000 \mathrm{~Hz}$ and falling more rapidly above that. Fron - 6 dB at $10,000 \mathrm{~Hz}$, the off-axis response fell to -19 dB at $20,000 \mathrm{~Hz}$. The tweeter's phase linearity was very good, with a group-delay variation of less than $\pm 50$ microseconds from 3,000 to 20.000 Hz . corresponding to a path-length difference of about 0.6 inch.

Impedance reached a minimum of 4.4 ohms at 170 Hz (and 5.2 ohms al 35 Hz ) but remained well above 8 ohms over most of the audio range. Maximum impedance was 52 ohms al 2.000 Hz . Sensitivity was 87 dB with 2.83 volts applied. A 4 -volt input was required to achieve our reference level of 90 dB SPL

## At 4 volts,

 woofer distortion was a low 0.5 to 0.6 percent from 120 to $1.6(\%) \mathrm{Hz}$. It rose to 3 percent at 100 Hz and remained between 3 and 6 percent from 100 to 30 Hz .The Paradigm Titan handled rather large power inputs without audible distress or damage. At 1,000 and 10,000 Hz , our amplifier clipped at 330 watts and 600 watts, respectively, with a single-cycle sinewave burst, but the speaker gave no signs of audible distress. At 100 Hz the small woofer reached its excursion limits, with a resulting hard sound quality, with 200 watts input.

## Comments

The Paradigm Titan sounded every bit as good as its measurements would imply. Over much of the audio range its frequency response ranks among the flattest that we have measured from a speaker. Although fre-quency-response measurements do not necessarily

define the sound quality of a speaker, in this case there was a good correspondence between the two characteristics.

It is nol unusual for a well-designed small speaker to sound smooth and well balanced, but it is less common for a small speaker to avoid sounding thin when the program calls for a bealthy hass output. The Titan passed that test handily. Even though it cannot reproduce the lowest frequencies. it does such a skillful job with the ones within its range that the listener does not notice that all of the music is coming from the pint-sized Titans. If you close your eyes. they sound just fine. giving no hint of their size. The small size, in fact. gives the Titan a distinct advamtage in imaging accuracy over many larger speakers

We have heard a few (very few!) speakers with a single 6 -inch woofer that can produce a similar effecs, but they usually cost considerably more. Calling this speaker "Titan" is not as extravagant as one might think - it is truly a giant-sized value.

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canadian manufacturer Paradigm might be, relatively speaking, a newcomer to the audio industry, but it has wasted no time in firmly establishing a comprehensive range of speakers with a model to suit any application.

The Performince Series of speakers. consisting of seven models, recently underwent a technical and aesthetic revamp and, as our May 1992 review of the new 9 seMkII model showed (see Australian HI-FI Volume 23 Number 5), the updates in technology have markedly improved the range. Now, in order to bolster the range at the entry level of the market Paradigm has added a new bookshelf model, called the Titan.

## The Equipment

My dictionary defines a Titan as '...one of exrraordinary size and strength', which certainly does not refer to the cabinets themselves, but could be inferred as describing the sound emanating from them. These
speakers are a true bookshelf size, measuring only 316 mm high by 196 mm wide and 238 mm deep, which gives them an internal volume of just 11 litres. These dimensions mean the speakers can be situaled with few problems on shelves or wall mountings. However, the use of tall stands is undoubredly the best means of locating them in their optimum positions.

The cabinet is a two-way, bass reflex design, and makes use of a rear-firing tuned port for low frequency extension. The cabinet is made from ordinary 12 mm particle board, and is unusually designed, in that the front grille is not removable. Entry to the box is only possible by unscrewing the rear panel and carefully extracting it from its very snug fit in the side panels. My review sample cabinet was finished with a black ash vinyl veneer, but the speaker apparently is also available in oak veneer and white.

Both drivers have been mounted inside the cabinet in recesses in the from baffle. Typically, the bass/midrange driver sits below the tweeter, and the crossover is attached to the front baffle between the two drivers, but just off to one side. The crossover network is a second-order type aligned for 3 kHz , and has been configured in a quasi-Butterworth arrangement. It has been corrected for both freguency and phase. In terms of components, I counted one standard bipolar electrolytic capacitator ( $2.2 \mu \mathrm{~F}$ ), an ordinary wire-wound ceramic resistor and a small iron-cored choke wound on a plastic former, all of which were glued to the front baffle in addition to being secured to it by a plastic pull-tie. There is no printed circuit board - all crossover connections are crimped and soldered.

One of my review sample speakers (which had obviously been much used, judging by the number of spike-marks on the bottom of the cabinets), had been dropped, which had not only resulted in damage to the front grille but had also caused the bass driver to come adrift from the baffle. Because of the way the bass driver is mounted to the baffle (it is inserted into a circular recess chamfered from the 12 mm thick front baffle), the screws used to attach the driver don't have too much to grip on. Paradigm obviously recognizes this as a design weakness, because the bass drivers on our samples were also glued in position in three places. It appears that while this dual-fixing method may be secure enough for all nonnal circumstances, buyers would be advised not to drop their speakers from great heights.

The bass driver is designed and manufactured by Paradigm, and features a 115 mm long-throw polypropylene cone which is attached to the 16.5 mm pressed steel frame by a foam roll surround. This means the Effective Cone Area (ECA) is $105 \mathrm{~cm}^{2}$, providing a total ECA of $210 \mathrm{~cm}^{2}$ for the pair. Each driver uses a 350 gram barium ferrite magnet. The voice coil is a 25 mm multi-layered type which is wound on a low-mass kapton former. As we have noted many times previously, the use of foam as a roll-surround substance means the speakers may be unsuitable for use in the far north of Australia (the tropics) or in marine applications, since high-humidity/high temperature environments, and exposure to salt air, are known to adversely affect some types of foam.

The tweeter used in the Titan is the much-lauded Vifa D19TD 19 mm polyamide done unit, which has been horn-loaded for a claimed sensitivity of 92 dB . which is reduced to 88 dB by the crossover networka technique Paradigm notes in a hand-out to distributors is intended to "increase reliability". The tweeter is ferro-fluid cooled and damped, and utilizes an aluminum former in the voice coil and a barium ferrite magnet.

Inside the speakers. we found that all interior connections are made by crimped sleeve connectors and that a single square of ordinary R4 fibreglass batt measuring $20 \times 20 \mathrm{~cm}$ is inserted in each cabinet, directly behind the bass driver, for damping.

The tuned port is made from cardboard tube (painted black on the inside) and is 36 mm in diameter and 130 mm long. It backs directly onto the rear of the tweeter, and is tacked into place by epoxy that is applied after the tube is inserted, rather than before. We found that this meant that in one cabinet, the cardboard tuhe was able to be removed rather easily from its mounting - we'd suggest that Paradigm could perhaps be just a little more liberal with its glue!

The rear panel hosts a single pair of rather insubstantial spring-loaded terminals, which was a little disappointing. Solid banana/screw terminals would offer a greater variety of termination options and
much hetter electrical contact
Paradigm claims a frequency response from 75 Hz to 20 kHz (on-axis, $\pm 2.0 \mathrm{~dB}$ ), noting that the real response in a room according to DIN 45500 will be around $55 \mathrm{~Hz}(-3 \mathrm{~dB})$, depending on placement and roon conditions. The company recommends an amplifier power range of 15 to 100 watts RMS, and a maximum power input of 60 watts. We note that this maximum figure is with a typical program source, using an amplifier that is driven into clipping for no more than ten percent of the time. The Titans have a nominal impedance of 8 ohms, but a minimum impedance of 4 ohms. As with all Paradigm speakers, the Titans are covered by a full, five-year manufacurer's warranty.
> "...a match for some speakers that are twice the size (and price)... THE FRONTRUNNER IN THIS MARKET NICHE."

"They are as sophisticated as any small speakers we have heard for quite some time..."<br>..remarkably big sound - big because of its full body and a wellextended soundstage..."<br>"It never reaches toward harshness... and displays a kind of soft sweetness that tends to give most music a warmth and hint of intimacy..."<br>...the bass response is really quite marvellous...the stereo image is very well focused..<br>"...the Titans...represent real value for money - an ideal first step on the hi-fi ladder.'

## Listening Tests

The Titans may be classified as bookshelf speakers, but to extract the most from them we suggest you procure a pair of solid stands which will place the tweeters at ear level for the main listening position. They are small and light enough to be positioned on a shelf or wall-mount device, but such a mounting position will almost certainly compromise their ability for reproduction accuracy. So. if you are considering such a proposition, think about it carefully before taking the plunge.

And, if you are using wall-mount brackets which musi be physically fixed to the cabinet. note that the wood used in the Titans is neither particularly thick, nor is it of high-density composition, so you would have to be careful with the mounting hardware. Also bear in mind that, as we have stated previously, speakers which are wall- or ceiling-mounted should have an additional. separately-anchored, wired restraint system as a sensible safety precaution. (Such anchors are mandatory if the speakers are irstilled in commercial premises.)

The Titans, we discovered, are very fussy about where they are positioned. This applies to all speakers. of course, but these little powerhouses are especially sensitive to placement with regard to the rear wall because of their rear-firing port. The time and
effort expended in finding the right position will be amply rewarded with a startling jump in performance ability.

We found that a distance of about 30 cm from the rear wall provided the most accurate bass response not the 'biggest' response, but certainly the most balanced.

It took very little listening to understand why Paradigm called these speakers 'Titans'. These little boxes deliver a remarkably big sound - big because of its tull body and a well-extended soundstage that belies the actual size of the drivers that produce it.

During our listening tests. we varied the styles of music considerably, and included Dvorak's Symphonies Nos. 7 and 8 , by the Concertgebouw Orchestra, conducted by Sir Colin Davis, (Award, AWCD28280), Mozart's Symphonies 19 to 23, by the Prague Chamber Orchestra with Sir Charles Mackerras (Telarc, CD-80217), Marc Cohn's selftitled album (Atlantic, 7567-ab-82178-2), On the Line. by Lee Ritenour (GRP Records, GRP-D-9525), and The Shouting Stage by Joan Armatrading (Festival. TVD93278).

As in many other speakers, the Vifa tweeter here imparts a delightfully rich but unclutiered reble. It never reaches towards harshness, regardless of the musical program. and displays a kind of soft sweetness that tends to give most music a warmth and hint of intimacy that would very much suit the bulk of rooms that will necessitate the use of such sinall speakers. The highs of some instruments - such as splash cymbals - could perhaps have done with a little more sheen and sizzle, but don't for a moment imagine that this means they sound dull or lifeless - on the contrary - some tastes might simply prefer an extra degree of brilliance.

The midrange receives a different sort of treatment. There is a suggestion of reticence here, as if the range is very slightly muted, giving the overall sound a subtle moody darkness. Male voices sometimes sounded lightly recessed in the whole image and several instruments, especially acoustic, sometimes tended to lose a little of their timbral nuances. This is more a suggestion of colouration than anything like a dip in the midrange response, however.

The bass response is the big surprise of the Titans. Strong. tight, punchy - and very convincing - it lacks a little in speed in thundering passages, with a subsequent loss of definition giving over to a hint of woolliness when the drivers are called upon to work overly hard. But remember the size of the drivers and cabinets, and the bass response is really quite maryellous, and certainly a match for some speakers that are twice the size (and price).

The overall sound is quite well-balanced and relatively neutral in character except for that hint of colouration in the midrange, and could perhaps best be described as "warm'

The stereo image is very well focused, with it reasonable size which extends to the 'boundary' established by the speakers themselves and with more than sufficient height. The depth sometimes loses out, especially with orchestral works, which often suffer from some image depth compression when replayed through small transducers, but small ensemble work is handled very well by the Titans, with each instrument clearly defined and properly positioned. This would have to be considered their forte.

## Conclusion

The Paradigm Titans may be small and inexpensive, but their sound could never be described in the same way. They ure as sophisticated and honest in character as any small speakers we have heard tor quite some time and as such, can be considered among the frontrunners in this market niche.

Those who prefer to listen to acoustic and small band music will be more favourably disposed towards these speakers than hard rock and large orchestra listeners because of their 'warm and intimate' presentation, but 'big sound' listeners should not be discouraged from auditioning them. Space-conscious rockers will be very impressed with their bass response, and lovers of orchestral works will enjoy the Titans' ability to deliver dynamic power.

Don't forget to allow for some stands in your bud get - the extra expense more than pays itself off in providing the Titans with every opportunity to show off their considerable charms and abilities. And even with this added expense, the Titans still represent real value for money - an ideal tirst step on the hi-fi ladder.

## Rollagotrone

Despite the name, the Paradigm Titan is no space-squandering behemoth but a modest bookshelf speaker from Ontario. I first heard it shortly before Thanksgiving dinner in the home of a trumpeter in Providence, Rhode Island. Silvery notes of chamber music were pouring out of the speakers, and though they were harnessed to inexpensive electronics, the sound was ingratiatingly well balanced. The hass is surprisingly full for a speaker this size. It won't shake the floor, but it rocks, as long as you set it up properly. Good materials, including a tluid-damped dome tweeter and polypropylene woofer, probably help. The cheapest bookshelf speakers cosi half as much but can't equal the Titan's pleasing blend of potency and smoothness.

Mark Fleischmam

## Mhaldinl

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Shown at the Summer '92 CES in Chicago, this budget Paradigm speaker is so new that to audiophiles and dealers it is, in fact, a Phantom, but it will begin to appear as summer wanes. I received an early production pair just after the show, and was impressed enough to include it at the last moment in this issue.

A ported bookshelf two-way with ferroflu-id-cooled soft-dome tweeter and 8" polypropylene woofer (of the company's own design), the Phantom has a non-removable grille, and comes in oak or black ash vinyl finishes with tapered front corners. Rear connectors are spring loaded types that will, with some stretching, accept banana plugs. There's none of that bi-wiring frippery here given the price point.

What Paradigm has done is engineer an amazing level of performance into this entry-level product The frequency response curves speak for themselves, as far as spectral balance is concerned.

The top quasi-anechoic measurement indicates some extra energy just below and above 500 Hz right up to 1 kHz , but generally
some cone-edge breakup from the woofer. However, at levels below 90 dB this speaker had a very musical quality, with excellent timbral accuracy. Female voice seemed a bit sharp, and male voice was quite forward, but orchestral music had good weight, while pedal organ definitely had pedal, the low end response full and tuneful, if not as well defined as that of some more expensive speakers.

On pop and jazz music the Phantom did almost disappear if not driven too hard. You won't have to turn it up to get good bass response, anyway, the speaker having a firm foundation on all types of music, with a little extra upper bass emphasis.

Paradigm has engineered a bot-tom-end winner (in both senses) that effectively competes with speakers close to twice its price, so any bud ding audiophile assembling a sys tem with an under$\$ 1000$ budget would be foolish not to audition the Phantom.
ble, with an upper midrange dip and a rise above
 10 kHz . The next curve below, the room curve, also at 1 metre on axis, shows bass that extends strongly to about 35 Hz , the woofer only 5 dB down at 30 Hz the 60 Hz dip being a room artifact. The rough ness is seen in the upper bass and lower midrange, but things get much more linear above 1 kHz , with smooth response to just above 4 kHz , with only a minor dip, and a rising character above 10 kHz of about 3 dB . Response on axis can be seen to be $+3 /-2 \mathrm{~dB}$ (ignoring the room dip in the bass) from 35 to $20,000 \mathrm{~Hz}$, quite astonishing response for a bargain basement speaker.

Off axis by $30^{\circ}$ and $60^{\circ}$ it is actually even smoother, the upper midrange and top-end anomalies flattening out. With the speakers pointed straight ahead, extremely accurate timbral response will be heard at the listening position

Impedance tests showed the Phantom to be an 8 -ohm speaker over much of the range, 10 ohms from 20 to 10 kHz , rising to 49 ohms at 2 kHz (the crossover point), then sloping evenly to 4.5 ohms at 150 Hz , with a peak of 33 ohms at the woofer resonance of 60 Hz , going down to 5 ohms at 40 Hz and below. It should be a quite easy load for any amplifier or receiver, and is quite efficient

Very impressive on paper, the Phantom did not disappoint in listening, though it did also show the limits dictated by its very low price. There was an excellent lateral image on orchestral and choral music, with surprisingly good depth, though definition became reduced as the soundstage deepened. The choral sound had good naturalness, but lacked a little in detail, and at high levels a shouty, hard quality started to emerge in the lower midrange. This can be seen in our quasi-anechoic curve, taken at about 84 dB , the congestion and roughness in the octave below 1 kHz , probably

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## Stereo Review

## JULIAN HIRSCH HIRSCH-HOUCK LABORATORIES

The Canadian-made Paradign Phantom loudspeaker is similar in basic design to the company's Titan system (reviewed here in September 1992), but with somewhat larger drivers in a larger cabinet. Its 8 -inch wooter, constructed on a die-cast aluminum frame. operates in a vented enclosure whose port is on the back of the cabinet. Except for its size and basket construction, the woofer appears to be generally similar to that of the Titan.

There is a second-order (12-dB-per-octave) crossover at 2.5 kHz to a $3 / 4$-inch dome tweeter with magnetic-fluid damping and cooling. Although this tweeter is the same nominal size as the Titan's, it is formed of a different material (treated textile instead of polyamide) and operates at a lower crossover frequency. Paradigm salvs the Phanton tweeter's design gives it better damping and power handling.

The Phantom's cabinet has more than twice the volume of the Titan's ( 0.93 versus 0.38 cubic foot). This difference probably accounts in large measure for the Phantom's somewhat higher sensitivity rating ( 90 dB sound-pressure level versus 88 dB ) and appreciably deeper low-frequency extension. Its on-axis response is specitied as 60 Hz to $20 \mathrm{kHz} \pm 2 \mathrm{~dB}$.

The Paradigm Phantom's input terminals are
spring-type clips that accept only stripped wire ends. They are recessed into the cabinet's rear panel. The enclosure's beveled front is covered by a nonremov able black cloth grille
We supported the Paradigm Phantoms on 26 -inch stands, several feet from any room walls. Their averaged room response was possibly the flattest we have yet measured from a loudspeaker, varying $\pm 2.5 \mathrm{~dB}$ from 47 Hz to $20 \mathrm{kH} /$ and a remarkable $\pm 1.2 \mathrm{~dB}$ from 1.1 to 11.5 kHz . There was a modest $5-\mathrm{dB}$ peak between 13 and 15 kHz , apparently from the tweeter's diaphragni resonance.

Quasi-anechoic MLS response measurements confirmed the exceptional smoothness of the Phantom's response. Although the specific features of the response curve differed slightly with microphone placement, its variations did not exceed 5 dB overall between 300 Hz and 11 kHz . and most of those were traceable to unavoidable reflections within the room

The horizontal dispersion of the Phantom was also surprising, with less than a $2-\mathrm{dB}$ level difference between the on-axis and 45 -degree off-axis measurements up to 8 kHz : the difference increased to only 3 dB at 10 kHz and 8 dB at 20 kHz

The minimum impedance of 5.6 ohms occurred at 30 and 130 Hz . There were impedance peaks to 20 ohms at $12 \mathrm{H} / 30$ ohms at 60 Hz , and 47 ohms at 2.2 kHz . Group delay, a measure of phase linearity, was virtually constant over the iweeter's range, varying less than $\pm 50$ microseconds from 4 to 20 kHz and about 1.2 milliseconds from 50 Hz to 4 kHz .

Sensitivity was almost exactly as rated -91 dB sound-pressure level (SPL) at I meter with a 2.83 -volt inpul of pink noise. We measured the woofer distortion at a constant drive level of 2.53 volts (corresponding to 90 dB SPL in our sensitivity measurement). The distortion was between 0.5 and 1 percent from 2 kHz to 100 Hz and less than 2 percent down to 40 Hz , but it reached 10 percent at 20 Hz . Listening tests confirmed that the Phantom's actual low-frequency limit was in the vicinity of 30 Hz , where the output was audibly clean although somewhat down in level.

## "The smoothness of the <br> Phantom's frequency response would do justice to speakers at TEN TIMES ITS PRICE. .UNQUESTIONABLY AN OUTSTANDING VALUE."

"...response measurements confirmed the exceptional smoothness of the Phantom's response."
"...the Paradigm Pantom is a remarkably good speaker in its price range
"...would be very competitive at a substantially higher price."
"In our opinion, it sounded as good as its measurements imply it should.'
"...no one hearing them in a blind test ...would be likely to guess that he was listening to a pair of speakers at this price level."

Pulse power tests showed that the Phantom was able to absorb a considerable amount of power without damage or (usually) unreasonably high distortion With single-cycle $1-$ and $10-\mathrm{kHz}$ bursis the driving amplifier clipped at 330 and 600 ) wats, respectively, without any ohvious signs of distress from the speaker At 100 Hz , where al most any speaker can be overdriven by most amplifiers. the Phantorn's wooter reached its suspension limits noisily (but without damage) at a 225 -watt input level.

These measurements would suggest that the Paradigm Phantom is a remarkably goocd speaker in its price range and would be very competitive at a substamtially higher price. The considerable listening time we devoted to it confirmed that impression. It is exceedingly rare to find speakers selling for this price that can deliver any sor of useful output at 30 Hz , to say nothing of having a response smoothness that would do justice to speakers at ten times the price.

From a purely sonic standpoint. the Paradigm Phantom is unquestionably an outstanding value. In our opinion. it sounded as good as its measurements imply it should. At its price. you do not get real bind-ing-post connectors or a wood-veneer cabinet. and our samples, which had a simulated black-ash timish would never be mistaken for fine furniture. On the other hand, no one hearing them in a blind test (not knowing what he was hearing) would be likely to guess that he was listening to a pair of speakers at this price level.

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N RECENT YEARS, Paradigm Electronics has proved to be one of Canada's most consistent manufacturers of high-quality speakers. At present. their line ranges from the tiny Atom to the ambitious Studio Monitor. This time around, we decided to test a modest new model - the Phantom and we were not disappointed. At this price the Phantom has to represent about as good a value as you will find in todlay's market

The Phantom is a fairly large "bookshelf" speaker containing a $210-\mathrm{mm}$ polypropylene woofer and a $19-\mathrm{mm}$ fabric dome tweeter: The rear-vented enclosure is finished in black (or oak) wood-grain vinyl. About the only shortcuts Paradigm has taken in producing this inexpensive speaker seem to have been the non-removable labric grille and the rather lightweight spring-loaded speaker connections on the back - neither a serious shortcoming.

## Measurements

The speaker's frequency response in an anechoic chamber is shown in Figure 1. The three curves are averages of some 200 measurements taken at various angles. The top curve is the on-axis response combined with measurements up to 15 degrees off-axis, to represent the direct sound reaching a seat in the "listening window" or "sweet spot. The lowest curve ( $60-75$ degrees), shows the sonic balance of sound directed to nearby boundaries; such near-field reflections can mix with the direct sound, influencing the overall characteristics. The middle curve (45-60 degrees), approximates the balance further back in the listening room. The curves for the Phantom are very similar, an indication of good dispersion and consistency of tanal balance throughout the listening room. More important, the curves are smooth and regular. showing both good extension al high and low frequencies and virtually no anomalies in between. This is one very well-balanced speaker.

The point is even more clearly made ir. Figure 2, where the top curve shows the total radiated power of the speaker, regardless of direction. This gives an idea of the sound balance the speaker would achieve in a fairly live normal room; in the case of the Phantom, the curve is excellent. The

## "...this speaker is the best by far!' AT THIS PRICE LEVEL, THAT'S REMARKABLE INDEED."

## "...the listening panel praised the

 natural balance of the Paradigm Phantom, and awarded it one of the highest scores in the listening sessions.""...the curves are smooth and regular, showing both good extension at high and low frequencies and virtually no anomalies in between.'

> "This is one very well-balanced speaker."
"Again and again, our listening panel commented on the neutral balance of the Phantom, with comments like 'good presence,' 'clear, detailed strings,' ..."
"... as good a value as you will find in today's market."
lower curve shows the speaker's directivity index. The Phantom is typical of point-source speakers, with very good stereo imaging.

In Figure 3, the lower curves indicate total harmonic distortion across the audio spectrum for two input levels. The lower, solid curve shows THD when the speaker is driven to 90 dB sound pressure level at mid frequencies; the dashed curve is for an output level of 95 dB . The difference between the two curves indicates the speaker's ability to handle high power levels, and while the increased distortion at 95 dB is not really excessive, our listening panel did notice some strain on musical passages with heavy bass. That was rare, however; in other cases. the Phantom handled the bass with ease having a -10 dB point of a very low 36 Hz . Overall sensitivity was 86.5 dB SPL at 1 metre. 1 watt.

Finally. Figure 4 shows the Phantom's impedance across the audio spectrum. The dip to about 5 ohims suggests that these speakers should probably not be connected in parallel.

## Listening Tests

Again and again, our listening panel commented on the neutral balance of the Phantom. with comments like "good presence," "clear, detailed strings." "smooth and undrumatic," and "this speaker is the best [in the listening test] by far!" Occasionally, notice was made of some prominence in the midrange, tending to bring vocals forward, but this was a reaction to the weak mids of some other speakers in the tests, as often as not. One consistent criticism was that, if anything. there was too much bass, which dominated the sound (and, possibly led to the distortion the listeners heard). This could probably be remedied simply by turning down the amplifier's bass control.

Criticisms of this sort were mild, however. Overall, the listening panel praised the natural balance of the Paradigm Phantom. and awarded it one of the highest scores in the listening sessions. At his price level that's remarkable indeed.


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A$s$ the interview in this issue shows, Paradigm has grown irapidly over the last few years, their emphasis on traditional box speaker designs that represent value for money. Their most expensive model is under $\$ 2000$, and that profiled here comes in at a very popular price point for first-time audio buyers.

The 3 seMkll is a front-ported two-way reflex design finished in black or oak veneer, with plas-tic-nut, gold-conductor 5 -way binding posts on its rear. Tweeter is a textile dome that is ferro-fluid cooled, while the 8 " waofer uses a clear polypropylene cone in a diecast aluminum basket.

In our measurements the 3seMkII showed smooth response on axis, but some upper midrange variations off axis. The quasi-anechoic curve shows generally smooth response, with a minor midrange dip, and gentle tweeter rolloff above its 13 kHz resonant point. The on axis room curve is quite linear, $+3 /-2 \mathrm{~dB}$ from 100 to about 14 kHz , while those at $15^{\circ}$ and $30^{\circ}$ off axis show variations of +/3 dB between 4 and 10 kHz . The response of these speakers will be a little smoother if they are angled in slightly toward the listening position. Off axis by $60^{\circ}$ the 3 seMkIl shows quite linear dispersion, and should have an excellent uniformity of tonal balance at any point in a room, its reflected sound very similar to the direct radiation.

Bass performance is very smooth, rolling off more gently than most ported types below 60 Hz , with usable energy to about 40 Hz with judicious placement. The slight rise just below


100 Hz could be increased if these speakers are too close to corners, but the front port and generally linear bass response make it less room sensitive than many speakers

Impedance was smooth, with a rise in the midrange to 20 ohms, with it 10 ohms above, and as low as 5.5 in the upper bass, with a peak at the woofer resonance of just over 20 ohms. Phase was quite linear, especially in the upper octaves.

In listening, this speaker showed very good neutrality, the soundstage slightly forward, but with good depth on choral music, and a quite open sound. Female voice was unusual ly uncoloured for a speaker in this price range, while acoustic guitar was clean and focused Both orchestral and choral music had a surprisingly full ambient field for a budget speaker, though strings seemed a little more homog enized than when heard from more expensive models.

Percussion and rock music were very dynamic, and the 3se Mkll will play quite loud without stress. Though it
did nol quite plumb the depths of organ peda bass, its ability to cleanly handle electric bass is something that will make it very attractive to young audiophiles; in other words, this is a budget speaker that can boogie

Perhaps more than any other model they make, this speaker embodies the Paradigm philosophy of most sound for the dollar. The 3seMkll is a superbly balanced design that combines just about as much accuracy, dynamics and bass extension as you can get at this price.


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The 7se has been a bread-and-butter speaker in this Canadian manufacturer's line for some years, selling at what is pretty much an entry price for audiophile models. With an additional clear polypropylene woofer and a redesigned tweeter, the Mk3 version extends bass response, and tries to refine imaging and midrange smoothness. I've never reviewed the original version, but have evaluated several other Paradigm models.


Clad in oak-grain vinyl, this speaker is frontported below the woofers, and uses a sott-dome tweeter. All drivers are of the company's own design and manufacture. Rear terminals are goldplated 5 -way posts, an extra pair provided for biwiring, the configuration in which the speaker was auditioned.

The 7 seMk 3 was quite smooth in our 1 -metre quasi-anechoic measurement, with a dip in the midrange and a little spikiness above, the mild tweeter resonance seen at about 18 kHz . Its lower midrange was notably smooth and resonancefree

The group of room curves shows good smoothness on and off axis, response generally $\pm 3 \mathrm{~dB}$ across most of the frequency range. The $15^{\circ}$ curve shows a dip in the upper midrange, but otherwise tracks that at $0^{\circ}$ closely; at 30 and $60^{\circ}$ we see a gradual rolloff with ascending frequency and increasing angle, but excellent dispersion overall. The fairly broad midrange dip that is characteristic of this speaker may tend to move images a little back in the soundstage.
the bass region we see quite smooth response in the nearfield measurements, spliced onto the 1-metre curves in the 600 Hz region. There is some extra energy just below 100 Hz , but

## "The 7seMk3 is obviously an EXCELLENT CHOICE.. offering performance comparable to many in the $\$ 1000$ range."

## "...lower midrange was notably

 smooth and resonance free...good smoothness on and off axis. excellent dispersion..."...nicely quick and silky character from the tweeter...good clarity. excellent soundstaging and depth...natural tone... $\nabla$
..never screechy or steely...very good weight and dynamics...this speaker will play loud with no complaint, and has a lot of solid, deep bass.'
"I also liked what other writers have called 'the ability to boogie', a lively rhythmic presentation that gives rock and jazz music a real impetus."
bass extends to about 30 Hz , with some energy even below. With careful room placement to minimize mid-bass boom, this speaker should provide a very solid and extended bottom; the front por will help in making it a little less sensitive to location, but clearly, it should be kept out of the corners.

The impedance measurement showed a 22 ohm peak at the crossover frequency, settling to about 10 ohms above, and dipping to 4 ohms in the upper bass; woofer resonance can be seen at 60 Hz in the 20 -ohm impedance peak, while the resonance of the large port appears to be below 20 Hz . The electrical phase measurment below
shows some anomalies at the bottom which can be ignored, and unusual coherence above the crossover for a speaker in this price class, the little blip at the top indicating the tweeter resonance
had to readjust my ears when listening to this speaker after a group of exotic reproducers. Though box speakers do have their virtues (and Paradigm certainly makes some of the best at reasonable prices), they have a very different sound from a dipole panel. What became evident after a few minutes listening was the nicely quick and silky character of the tweeter. Female voice sounded very natural, though a bit forward, and choral voices were well portrayed a little farther back in the soundstage, with good clarity. though there was less sense of the individual voices than with some more expensive speakers. Orchestral music showed the 7se's excellent soundstaging and depth, though cellos tended to be a little more present. Strings in general had a natural tone, and were never screechy or steely, and orchestral music had very good weight and dynamics; this speaker will play loud with no complaint, and has a lot of solid, deep bass. I also liked what other writers have called "the ability to boogie", a lively rhythmic presentation that gives rock and jazz music a real impetus. The tweeter is quite fast, and the woofers keep pace very well

I'm not sure I prefer the sound of this speaker over that of the Titan/SB-100 subwoofer combination, the latter a little smoother in the midrange, but the $7 \mathrm{se} / 3$ having better bass extension, and a slightly more revealing tweeter. With a pair of subs the Titan is actually more expensive, but with one comes in at a reasonable price. Those listening to any of these at their Paradigm dealer will probably decide on the basis of box sizes as much as anything else. The 7se Mk3 is obviously an excellent choice in a largish floorstanding speaker at its price, offering performance comparable to many in the $\$ 1000$ range.

sent the tweeter for this speaker is made elsewhere; plans are in motion to have even tweeter manufacture brought into their own facility during 1992. The drivers are crossed over at 275 Hz and 2.5 kHz

As you can see from the cut away drawing, the enclosure is braced at 4 points internally, as well as containing considerable CO-SPUN (a proprietary fibre) damping material to also minimize internal reflection and vibration. The front baffle and internal braces are made of Medite fibreboard, while the enclosure outer walls are of high density hard-board, the use of dissimilar wood products said to further reduce resonances. One expects a large speaker to provide deep bass response, and our quasi-anechoic curve (measured at 1 metre on axis with one speaker driven at 80 dB ) shows extension to below 40 Hz , with a gradual rolloff that extends right to 20 Hz . The dip above 200 Hz is largely a measurement artifact that occurs with large, floorstanding models in our measuring space, but the rise just below 100 Hz does reflect the strong bass output in this region, a result, I think, of the port's proximity to the floor. Response through the midrange and right up to 10 kHz is very linear, almost as smooth $60^{\circ}$ off axis as on, with a mild rise around 2 kHz . On axis, the metal dome shows a slight bit of extra energy between 11 and 14 kHz

The room curve (taken with both speakers driven at 80 dB , one on axis at 1 metre, the other in normal stereo position relative to it) shows the bass power this system is capable of, with some prominence around 80 Hz , but powerful extension right down to 20 Hz . The 200 Hz dip is less evident, with very smooth response above that extends right to $10,000 \mathrm{~Hz}$, the same mild rise noted in the extreme treble, Overall response is $\pm 4 \mathrm{~dB}$ from about 28 Hz to 20 kHz , with an even more linear $\pm 2 \mathrm{~dB}$ from 250 to 10 kHz . The dip around 200 Hz may be partly a crossover glitch, but the transition between midrange and tweeter is virtually seamless on axis, just slightly shown in the


The Monitor Serics is intended to compete sonically with such high-end syseems as B\&W. KEF, and Thiel. but at about half the price. Pariditigh has applied all the hnowledge and technology they learned through their close issociation with Canada's National Research Council to produce what they believe is a highls accurate, low-disturion system at a lery atifondable price (see "Testing Al Canada's Natiooal Research Council," Sept. 1989.). Paradidigm now depends much less on the NRC because they have established their own in-house K \& D and manuticturing facility, which includes a large anechoic chamber (t) feel 33 leer $\times 28$ feet). along with two world-class listening rooms.
The Studio Monitor is a large and fairly heavy, threeway system that uses a pair of parallel-conneeted 8 -inch woofers. operating in a vented (bass-reflex) box. Paradigm manufactures the wooiers. cross overs. and cathinets for the Monitor line but obtains the midranges and tweeters from Vila, which makes them to
Paridigm's specitications. Thie system, which is deeper than it is wide, is nearly 4 feet tall. It contains a vertical amtay of drivers with the two woolers on the botom, and the midrange and tweeter mounted above. a
cleanly reproduced, while electric bass seemed just a bit sluggish, this effect able to be minimized by careful speaker placement to moderate the 80 Hz prominence. However, the deepest bass came through with impressive solidity and power. This speaker reproduces pedal organ like few can, with astonishing authority even at very high levels. The Studio Monitor is quite efficient, and capable of very high levels, and reproduces the weight of a full orchestra with no strain, the main virtue of a big speaker.

With the capability of being bi- or tri-wired or bi- or tri-amped, this speaker is amenable to fine tuning: in the latter configuration an amplifier with level controls can be used to bring the bass down 2 or 3 dB for very flat response. Many listeners will enjoy the very full bottom end, though I would recommend, at the very least, bi-wiring for this reason: in any speaker with extended bass capability, back EMF (electro-mechanical feedback) occurs, the woofers' energy reflected back into the crossover to muddy the midrange. Biwiring makes this coupling impossible, the result cleaner overall sound.

Regardless of how you drive it, or hook it up, you won't need a big amplifier to get very high levels from the Studio Monitor because of its efficiency, 100 honest watts plenty of power

Paradigm has created a model that competes with others costing quite a bit more, for example, the Energy 22.3, the PSB Stratus Gold or the Angstrom 606. In this context, I would call the Studio Monitor a quite notable value among higher priced speakers

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The recently updated Paradigm Studio Monitor is their top-of-the-line and most-expensive system. It is part of the five-system, high-performance After my excellent experience with the firm's 7 se (Sept. 1989). I was interested to see if the Studio Monitor continued the fine tradition: the system did not let me down.
on the center line of the front pamel. The high-excursios. 8 inch wooters use large. 40 -oz. magness and 1 z-inch diameter voice-coils, and are mounted in die-cast alumimum trames. The motor drive uses "focused-field" magnetic geomery and ligh temperature precision wound voice-coils mountded on a sented. aluminum and Kapton former. In order to minimize distortion. Paradigm uses a special conc and surround material that they call a "mineral-filled copolymer polypropylene joined io a high-hysteresis symthetic buyl suspension" (sounds impressive). The similarly cooled midrange utilizes cursilinear cone of the same materials that exhibits "exceptional stiffness versus mass and excellent internal danping.

The Ferrolluid-cooled iweeter uses a tow-profile. convex aluminum dome. (which is suid to push the dome's tirst breakup-resonance frequency fur above the audible range) and a treated textile suspension. The tweeter utilizes a close-mounted diffraction lens over the center of the dome to smooth and
Coupled with oller design feallures. the tweeter is said to exhihit exceprional power handling and freedom from dynamic compression.

The Studio Monitor's crossover contains four resistors, one rheostat four inductors. and six capacitors. not counting
> "Does the Studio Monitor meet its goal of keeping up with the big-guy, highend systems at only half the price?You bet! Check them out for yourself!"
paralleled units. All parts are high quality and very close colerance $( \pm 2 \%)$. The rheostat, a factory-only adjustment. allows the level of the tweeter to be set for close unit-tounit matching. The woofer and midrange inductors use iron and territe cores, respectively. while the tweeter coil is an ar-care type. The crossover is said to be of quasiButterworth. electro-acoustic design. The crossover is wired point-to-poim on two hard boards: one is the rear terminal hoard, and the other is a smaller board for the lowfrequency components.

The rear of the cabinet contains the large connection panel. with three pairs of heavy-duty, double-banama jacks for the woofers. midrange. and iwecter. This allous biwiring of tri-wirimg the system. (The cable manutacturers love Paradigm! Actually having the three parts of the system separately avalable is a boon to us reviewer types who like to investigate crossover relationships. roll-oft slopes. etc.). The holes of the jacks will accept large cable, up to 0.2 inch (\#4 AWG) in diameter. In standard. single-u iring contiguration, four gold-plated straps are provided to connect the three sets of terminats.

The rmain structures of the Studio Monitor's cabinet are constructed from high-density composite hard board. which is said to lave high intemal damping to minimize resonances. Platform braces. made from Medite fiberboard, located around the fill perimeter, also reduce resonunces. The "Co-Spun" damping material used to reduce intemal standing waves is said to be acoustically transparent at lower frequencies where the vented-hox cabinet operates The midrange operates in its own tubular subenclosure that connects the front and rear of the cabinet. Real wond veneer is used on the top. sides. and rear of the cabinet. while the front panel is finished in Paradignts trat ditional metallic.

## Measurements

Figure 1 shows the on-axis anechoic trequency response of the Studio Monitor. taken with and without the grille. Neasurements were taken al a distance of 2 meters from the cabinet's front. on the tweeter's axis, with a voltage of $z .66 \vee$ mas, and referenced back to 1 meter. The response below fin) Hz was derived from 2-meter groundplane measurements with inpul reduced to 2.83 V rms w compensite for the ground plane's $6-\mathrm{dB}$ boost.

The only signiticant trend in the response is a gradual slope in the response of about $0.8 \mathrm{~dB} /$ oxtave from about 70 Hz to 9 kHz (drops about 5.5 dB in this sevenoctave range). Along this slope, the response is quite smooth and exhibits no significant peaks or dips. From 9 to 20 kHz . the response rises aboul 3 dB . Even including the gradual roll-of and the rise in response above 9 kHz . the overall response from 37 Hz 1020 kHz stays within a finity tight window of $\pm 3 \mathrm{~dB}$ referenced 10
"...the systems exhiblted a vivid realism and extended, smooth response with a detailed and expressive high end. The acoustic bass lines were reproduced particularly well with fine control and extension.'
...an excellent soundstage, with good width and depth, coupled with firstrate recovery of recorded ambience.
"Cathedral pipe organ was also reproduced on a satisfyingly big scale with room-shaking bass from the pedal notes."
"The maximum output of the Studio Monitor at low frequencies rates it with the best speakers I have tested..

## 1 kHz

Below 10 kHz , the main effect of the grille is a $4-\mathrm{dB}$ notch in the response at about 7 kHz Otherwise the grille's effect on the response is minimal. Averaged over the range from 250 Hz to $+\mathrm{kH} \angle$. the sensitivity of the system is 86.9 dB . essentially equalling Paradigm's 87-idB rath ing. Right-left matching was a very tight $\pm 0.5 \mathrm{~dB}$ from 100 Hz to 20 kHz .

Figure 2 shows the phase and the group delay responses of the Studio. referenced to the tweeter's arrival time. Both these curves are quite snooth and well behaved. Between 1
and 20 kHz . the phase curve rotates a signiticant $216^{\circ}$ This rotation is due to a combination of crossover design and midrange/tweeter acoustic-center offsel. Between I and 3 kHz , the midrange output lags the twecter by abou 0.17 mS .

The system's energy-time response is shown in Fig. 3. The test parameters were chosen to accentuate the 1 to 10 kHz response, which includes the upper crossover region The main spike, at 3 mS . is quite compact and narrow which indicates coherent summing of the midrange and tweeter outputs. A delayed spike, about 22 dB down from the peak. 660 (1)S after the main arrival, seemed to be related to diffraction from the edges of the cabinet, because the height and liming of the return depended on the horizontal angle at which the energy/time response was taken (curves not shown).

The horizontal "3-D" off-axis responses of the Studio Monitor are shown in Fig. 4. The curve al the rear of the graph is the onaxis response. The horizontal coverage of the syslem is very even beciluse the details of on-axis response are essentially the same as those of the off-axis curve. The narrow ridge on the right side of the curve sel indicales a high-frequency broadening of coverage. Display of an individual curve beyond $25^{\circ}$ off axis. shows a narrow, third-octave-wide peak at 18 klHz which is about 10 dB in level above the nearby response. This dramatic directional widening of response may be due to the previously mentioned diffraction lens placed over the center of the tweeter dome.

Figure 5 shows the vertical off-axis curves of the Studio. The bold curve in the cemter of the graph (front to rear) was made on axis. The response curves in the range of $\pm 15^{\circ}$ are quite symmetrical up and down and do not exhibit any major dips in the high-frequency. crossover range within $\pm 10^{\circ}$ of on axis. Beyond about $30^{\circ}$ off axis, the response is actually a bit flatter for down angles than up angles. The same sharp off-axis high-frequency peak noted in the
horizontal responses is eviden in the vertical responses heyond about $\pm 30^{\circ}$. Overall. the vertical coverage in the main listening window is quite uniform

I investigated the crossover's phase relationships by inverting the polarity of the midrange. using the tri-wire input connectors. With the midrange reversed. deep nulls in the on-axis response appared at both crossover points. This indicates near-ideal driver-io-driver phase relationships through both crossover regions. For broadest verfical coverage and a forward-facing directional bean al crossover (minimum lobing error), the high- and low-frequency drivers need to be in phase with each other throughout the crossover range. The sirong anti-phase behavior of the Studio Monior's crossovers, with the midrange reversed, indicates that its crossovers are neariy ideal in the standard comection

Figure 6 shows impedance versus frequency over the extended range from 10 Hz to 20 kHz . A minimum impedance of 3.2 ohms occurs al 8.5 Hz and a maximum of 14.2 ohms at 5 kHz . This max/min variation of about 4.4 to 1 (which equals $14.2 / 3.2$ ) means that the system will be somewhat sensitive to cable resisiance. Thus, cable resistance should be limited to a maximum of about 0.050 ohm ( 50 milliohms) to keep cable-drop effects !rom causing response peaks and dips greater than 0.1 dB . For a typical run of about 10 feet. 14-gauge or larger low-inductance cable should the used. Smaller-diameter wire can be used but will result in higher peak-to-dip variations in frequency
response. The 4.3 -ohm minimum at 24 Hz occurs at the vented-box tuning, where the enclosure's resonant loading is greatest. Interestingly, the impedance is fairly flat and stays ahove 10 ohms. over a wide range extending from about 400 Hz to 10 kHz .

Figure 7 shows the fairly well hehaved complex impedance. ploted over the range from 5 Hz to 30 kHz . The impedance phase (not shown) reached a maximum of $+46^{\circ}$ (inductive) at 262 Hz and a minimum angle of $-30^{\circ}$ (capac itive) at 13.5 kHz . A cute little curlicue, of little significance ( 1 helieve), is exhibited at 2.9 kHz . Although the phase angles are nol excessive, and the impedance is quile high over a significant part of the audible range. the low impedance in the bass range will make the system fairly demanding on a power amplifier.

On a high-level, low-freque cy. sine-wave sweep, no
significant cabinet res-
> "The [Studios] exhibited an open, spacious, clean sound, with excellent soundstaging and powerful bass capacity.'
"Phase relationships in the
Studio Monitor's crossover Studio Monitor's crossover region are nearly ideal." $\nabla$
"I can only show distortion for one of my usual three tones: it was unmeasurable for the other two."
"The Studio Monitor's port turbulence and vent noise were the lowest I have ever measured.'
"On most program material, the Paradigm systems were so similar to my reference systems that if I directed my attention elsewhere. I virtually could not tell the difference when switching from one system to the other!" distortion for on "The Studio Monitor turbulence
 significant cabinet resonances were exhibited. A mild tront-panel resonance at about 300 Hz was evident, with maximum activily at a point hallway hetween the midrange and iweeter.

As compared to the port-covered condition, the port reduced the woofers' excursion over a wide range from 19 to 45 Hz . with a minimum excursion at 25 Hz , the system's vented-box luning. At this frequency, the vent reduced the excursion of the top wooter by a healthy $75 \%$ and the hottom woofer hy only about $50 \%$ (again as compared to the vent-covered state), even though hoth woofers are in parallel and thus should theoretically have the same excursion! This loading difference could be due to nonuniform soundpressure distribution in the enclosure.

At power levels of 100 watts or less (about 25 V rms), at frequencies near box resonance (between 20 and 30 Hz where port air velocity is maximumb), vent noise and turbulence were the lowest $I$ have measured. The system always sounded quite clean and effortless at all bass frequencies above 18 Hz . Although Paradigm describes the low-frequency part of the system as a quasi-third-order resistive-porl system, the system performed as a well-tuned pure vented-box system. Visual inspection of the port reveals no added resistive material; the port is completely clear on the inside.

The miximum excursion of the 8 -inch woofers wats a generous 2 inch peak to peak. with a linear excursion of about 0.4 inch peak to peak. The woofers overloaded quite gracefully and exhibited no dynamic offse problems.

The Studio Monitor's 3 -meter room curve is shown in Fig. 8 with both raw and sixth-oclave smoothed responses The sysicm was in the right-hand stereo position, aimed at the listening position. and the test microphone was placed at ear height ( 37 inches) at the listener's position on the sofa. The system was driven with a swept sine-wave signal of 2.83 V rms (corresponding to 1.33 watts into the rated 6 -ohm load). The direct sound plus 13 mS of the roon's reverberation are included. Above 1 kHz , the curve is fairly smooth but tilts up above 13 kHz . Peaks at 170 and 800 Hz occurred but. excluding the room effect dip at 400 Hz . the averaged curve tits into a $10-\mathrm{dB}( \pm 5 \mathrm{~dB})$ window from 100 Hz to 20 kHz .

Single-freguency harmonic distortion versus power for the musical note $\mathrm{E}_{1}(41.2 \mathrm{~Hz})$ is shown in Fig. 9. Distortion plots for the usual $110-\mathrm{Hz}$ and $440-\mathrm{Hz}$ tones are nol shown because the distortion was so low that it was helow the floor of my measuring gear! The power levels were com-
puted using the rated system impedance of 6 ohms. A maximum power of 100 watts ( 24.5 V rms) was set as the upper limit. At maximum power, the distortion reached $4.9 \%$ second and a farly high $18.6 \%$ lhird. The finth was the only significant higher harmonic, at $5.6 \%$. At 100 watis, the sysiem generates a loud 105 dB SPL at one meter at 41.2 Hz .

Figure 10 displays the $I M$ created by tones of 440 Hz (A) and $41.2 \mathrm{~Hz}\left(\mathrm{E}_{1}\right)$ of equal inpat power. The IM distortion rises only to the low value of $5.3 \%$ at full power. because the system's lower crossover, at 275 Hz . separates the two IM test tones and thus minimizes the distortion.

Shown in Fig. 11 are the short-term. peak-power input and output capabilities of the Sudio Monitor, as a lunction of frequency, measured using a third-octave bandwidth 6.5-cycle tone burst. The peak inpu power was calculated by assuming that the measured peak voltage was applied across the rated 6 -ohm

 esponse at 80 iz and 9
it 20 Hz .
Witl room sain, the pcak sutpui starts strong 106 1 B at 20 Hz . ises rapidly to 112 dB at 25 Hz , and after a slight rises into the very loud
mid-120s region, where ontput match es the peak music (wis) ath appropri powered mplific Wilh room gain. the sys mum oulpu exceeds 110 Hz and 120 dB above 90 respectable ow-frequen cy limis! 'The mum outpu of the Sudio Monitor at low Irequencies ramks it with the best speakers I have tested, which include such strong comperitors as the B\&W 801. P'SB Siratus Gold. JBL L7. Legacy Convergence, and Velodyne and Hsu subwooters! A slereo pair of speakers can be expected to reach even higher low-frequency levels with bass material common to both chamels

Use and Listening Tests
My review systems were supplied in a good-looking matural oak finish. The systems' cabinetry, workmanship, and lit were tops. Howerer. I can't say I like the metallic from panel in combination with the rest of the system. The systems are supplied with removable. adjustable spiked feet. which I used part of the tinse. Moving the system without the spiked feel attached was staighturward. because their weight is less than 100 ) hs .

The supplied $8 \% \times 11$-inch owners manual is well written and tour pages long. The actual manual is twice this size due to Canada's mandarory French language transtation. A waining note on the fron of the manual was quite usefut to me: it warned that if the systems are transponed or stored below $50^{\circ} \mathrm{F}$, they must be allowed to warm up to room temperalute hefore using (due to stiffening surrounds on the midrange and woofer drivers and thickening of the Ferrofluid used in the iweeter). This calsed me to think twice before testing the systems ouddoors in $39^{\circ}$ weathes (the warmest recent winter day here in Indiana)!

One complete page of the manual is devoted to bi- and tri-wiring and to passive bi- and tri-amping, with a well written description of the horizontal and vertical hi- and tri-amping configurations. Paradigm suggests aiming the systems toward the listening position in order to optimize high-frequency response and coverage. with a location well atway from any reflecting surfaces.

For listening, I placed the systems in my regular listening positions 8 feet aparn and 10 feet from my listening sofal with a spacing of about 5 feet from the tear wall. My equipment line-up includes the new hrell KRC preamplifier and KSA- 250 power amplifier along with the Rotel and Onkyo CD players. Other equipment includes the B\&W 80) Series If speakers ( am arranging 10 replace these loudspeakers with the new Series III versions). and Straight Wire cabling

On first listening. I was surprised how very close the Studios sounded to my reference B\&W systems. This similatity extended through the whole frequency range and even included essentially the same sensilivity; no leve matehing was required! The systems exhibited an open. spacious, clean sound, with excellent soundsaging and
owerful hass capability
On an excellem new acoustic jazz CD 1 picked up a the recent winter Consumer Electronics Show. The tmmigrant's Dilemma by Todd Garlinkle (M-A Recordings MOI7A, an audiophile direct-10-DAT recording done with (wo B\& B ton microphones), the systems exhibied a vivid realism and extended. smooth response with a detailed and expressive high end. The acoustic hass ines were reproduced particularly well with fine contro and extension.

On wide-range symphonic material with chorus and soloists, heary with percusston, such as the new Dorian Discovery release of Venczuelan Antonio Estevez's La Cantata Criolla (DIS-80101) the systems demonstrated an excellent soundstage, with good width and depth. compled with lirst-rate recovery of recorded ambience.

On most program materiat, the Paradigm systems wert so similar to my reference systems that if I directed my attention elsewhere (thus remosing directional cues to source identification) hy facing to the side, or standing up behind my listening couch and facing to the rear. I virtually could nol tell the difference when swithing from one system to the other! One source where I could tell the difference, however. was on Clair Marlo's solo singing on Let $h$ Go (Sheffield Lah CD-29), where she sounded slighty more open and crisp on the reference systems
On pink noise, when silting down, there were minimal onal differences when compared to my references. Evenness of vertical coverage on pinh noise was good on the stand-up. sit-down test, but not as uniform as my reterences. The Sudios exhibited some upper-midrange suckout when I was standing

On band-limited, third-octave pink noise, the Studios did extremely well on all the low-freguency bunds. As compared to the $\mathrm{B} \& \mathrm{~W}$ systems. the 20 - and $25-\mathrm{Hz}$ bands were the only ones uith slight differences. mainly in the higher frequency sound the port generates when the ai velocity is high. The B\&W port produced a swishing sound. while the Studios had a slight tonality to the air tush sounds. which may be due to organ-pipe resonances in the port. The B\&W sounded slightly cleaner on these two bands when generating the same fundamental sound level.

The systems can get down and boogie when required This was demonstrated with the bass guitar and kick drum on the "We Will Rock You," and "Fat Botomed Girls tracks on Queen's Greatest Hirs CD (Hollywood HR-61265-2). Fairly clean levels of 95 to 98 dB SPL, A weighted and 10.3 to 105 dB with C weighting could be generated. Cathedral pipe organ was also reproduced on a satisfyingly big scale with room-shaking bass from the pedal notes

Does the Sudio Montor meet its goal of keeping in with the big-guy, high-end systems at only half the price? You he! Chech them out for yourself


Paradigm has taken a mix-and-math approach to home theatre. Though suggesting Titans up front, with Atoms at rear, either compact speaker can be used in fours with the subwooter and centre channel speaker. In fact there are two centre channel models, the straller CC-100 sized for place-
ment on top of a TV monitor I would suggest using each satellite speaker model in fours with subwoofer and centre chamel.

All were finislied in blach woodegrain vinyl as supplied. but Paradigm was showing all in a glossy woodgrain finish that is sery atiractive at the Chicugo CES in June. This will he available at slightly higher cost

The Titan measurements show an amazingly lineat speaker for its price even in the quasi-anechoic curve at top. with the tweeter resonance seen at about 19 kHz . This trace is notably free of the spikiness seen in many lowdspeakers.

The room curves below show vety smooth response at $0^{\circ}$ and $15^{\circ}$ ithough the midrange. with a slight rise above 10 kHz . and a little roughness helow the 2 kHz crossove: peint from the woofer surround. Even at $30^{\circ}$ off axis, the iweeter is very linear, and at $60^{\circ}$ exceptional dispersion is seen up to 16 kHz .

Bass nearfield measurements of wooter and port are spliced to the 1 -merre curves at 650 H c. and show a rise between 100 and 200 Hz , hut with excellent shelved response right down to 30 Hz . Room boundaries can be used to extend deep bass, and mounting in a wall unit should be an ideal situation for this rear-ported speaker, if there is space for the rear wave to emerge

The impedance reasuremenss show that the woofer and port are tuned quite far apart, the por peak reaching about 27 ohms at 25 Hz , and the wooter one al 90 H zheing about 40 ohms. Otherwise low trequency impedance is about ohms, rising to a high 60 ohms at the 2 hHz crossover pomt declining to about 10 ohnss an high frequencies. The spike at the upper end of hom impedance and phase traces indicates the tweeter resonance.
he electrical phase measurement shows a $90^{\circ}$ sw ing through midrange and upper freyuencies, suggesting that the woofer is connected in oppooite polarity to compensate for crossover phase variations. However, the very fiar trequency responses indicate that acousic phase is quite accurate, the drivers' combined response having no discemible cancellations

The Atom also measured quite well for a speaker at a rock-botom price. its midrange dip resembling that seen on some other Paradign models. The response traces all $0^{\circ}$ and $15^{\circ}$ are virtually identical, that at $30^{\circ}$ just at bit smoother it the very top of the range. This is excellen dispersion. and used in a home theatre system the Atom will provide even

## "I found the sound of both Titan and Atom based systems very clean and dynamic...

 $\nabla$"The Titan measurements show an amazingly linear speaker...
"...in a home theatre system the Atom will provide even frequency distribution over a wide listening radius."
...it [SB-100] is a good addition in both pure audio and home theatre systems..
"The Atom system comes in at a quite astonishing price...
"The excellent dispersion of all models makes listening well off axis, especially with a centre channel, little problem, with good stereo and surround imaging always apparent." and though this might improve dialog articulation, it will also be heard with music as a slighty forward character.
Where the Atom shows its diminulive size soni cally is in the botom octaves, where response rolls off quite quickly below 60 Hz . As can be seen, the subwoofer extends response to 40 Hz , but more on this below.

Impedance measurements of the Atom show nominal value of abour 5 ohms in the bass region, with port and woofer peaks at 25 and 35 Hz , respectively. Just over 40 olms at the 2.5 kHz crossover point. it settes to 10 ohnis at high frequencies

Phase is similar to that of the Titan, ranging over $90^{\circ}$ in the treble region, and showing some complex effects in the hass region which are of little acoustic significance.

The CC-200 centre channel speaker has quite similar response characteristics to the Arom, but its bass from the front-ported quite burge box is more extended, like that of the Titan. A little rough in the lower midrange, its response above is very linear and well dispersed on all axes. With a pair of woofers flanking the central tweeter, it will have excellent extension on mono sources, and when used with 4 Titans is quite impressive even withour the subwoofer.

The matching subwoofer uses an internally mounted $10^{\prime \prime}$ woofer in a ported hox with 4 sets of spring-load connectors for input and output to the satellites. Quite large. it is less invisible than some, but could be used as a coffee table to ratle your cups. If size is not a concern, you can use these subs in pairs, and full connection diagrams are provided in the instruction sheet, as well as those for bi-amp operation.

The SB-100 subwoofer operates over a quite narrow range, as its measurement on the Afom chart shows. Its response kicks in just below 100 Hz , and rolls off below 40 Hz ; extension into the 30 Hz tange can be achieved with judicious placememt. Its response has been carefully tailored to work well with both satellite models. and it is a good addition in both pure audio and home theatre systems based around either speaker. As with the Monitor Audio sub (also tested in this issue). the contribution of solid, clean. highlevel bass is only hinted at in the measurements; the Titan in particular, can go quite deep, but not at the kind of volume the sub cill achieve.

I found the sound of both Tirtun- and Arom-based systems very clean and dynamic, the smoothness and extension of the former obviously preferred as a more expensive option. The excellent dispersion of all models makes listening well off axis, especially with a centre channel. little problem, with good stereo and surround imaging always apparent.

The Paradigm systems were capable of playing louker than the Monitor Audio 200 system, but the sound was a little less refined, though. at only one third of the cost, the Titan system came pretty close; while thater in frequency response, it did not provide quite the detail and depth of image heard from the gold dome tweeters.

These systems are very good approatches to home theare in a small or moderately sized room. The Arom system comes in at a quite astonishing price, while the Tiran (also with sub and centre) retails for a bit more; a set of 4 matching stands can be added for a minimal amount

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## Sound \&Vision

There is hardly an audio manufacturer that hasn't come up with a speaker package for home theatre use Sometimes these are multi-dollar THX extravaganzas, sometimes they consist of minimal units that rely

shelf. Boith Atoms and the Titans are available in shielded versions for a slight premium. For our listening lests, we decided to go with the shielded Titans up front, connected to a single subwoofer, the Atoms for surround. and the CC-200 for the centre. The total cost - about as inexpensive a surround systent as you are likely to find. Not surprisingly, considering the source, the sound was excellent, throbbing along with the low lows (the explosion and effects near the opening of Stur Trek VI: The Undiscovered Country were especially impres. sive) encircling the listeners with ambience, and playing very loud without distress when that was indicated. More so than other systems, it did all of this with a fine, neutral character.

Given the options available, we decided to play with other setups, and found tha: we were able to inch the sound quality up a touch. A second subwoofer was, we thought, preferable in our large and fairly dead listening room, but the increment was quite modes. The balance of the CC100 centre speaker was a bit smoother than its sibling, but in the end we preterred simply to use a shielded Titan for the centre; identical speakers across the front are theoretically ideal, and in fact, that sounded best.

But. in fact, the various combinations of
center back: CC-200, center front: SB-100, background: Atoms, foreground: Thans Paradigms sounded very good whichever way we ser
mostly on directionality for their effect.
Paradigm, however. has taken a different approach: its surround sound system consisis mostly of existing speakers, which can be combined in a wide variety of configurations. Two new models have been introduced that are, however, designed for Dolby Pro-Logic use. Both are shielded centre-channel speakers, one imended to be placed above, and the other below. a TV monior. Both are two-waly designs with a pair of $51 / 2$ inch mid/bass drivers flanking a $/ 4$ inch tweeter and both retail for under $\$ 200$ each. The differ ence is that the CC- 100 is wide but quite shallow, and can perch atop the monitor itself. The CC-200 is narrower and deeper. which Paradigm says is prelerable, and which can be placed beneath a typical TV monitor.

The other new goodie - the SB-100 passive subwoofer - can be used with virually any speaker. but its ideally suited for surround sound as it allows the other speakers to be quite small. The SB-100 has a number of heavy-duty binding posts hidden out of sight on the bottom pinel. In one configuration, which uses a single subwoofer, cables from both amplifiers can be attached, and a second set run to each of the satellites Alternatively, two subwoofers can be employed, with each one feeding a single satellite, or all the speakers can be attached separately.

The SB-100 sub is roughly cubic, about 17 inches high, and so is less stashable than some, but it is attractive enough that it can stay in sight and makes a fine end table. It is available in several finishes.

For main speakers, Paradigm recommends the Titan, a mini-bookshelf two-way that shares the tonal neutrality we have come to expect from Paradigm. As a small speaker, it is somewhet shy in the low end, which is why the subwooter is advisable. As a step-up system, however, the company suggests puting the Titans in the rear and using a larger speaker up front, such as the Plantom (see Sound \& Vision, Vol. 9 No. 2 . March/April 1993, page 20). In that case, the subwoofer may be unnecessary; the Phantoms frut out loss of bass.

The basic surround speaker, according to Paradigm, is the Atom, a tiny two-way sutiable for mounting on slands or tucking away on a
them up. For the price - or even double - it's hard to beat that.

## "FOR THE PRICE - OR EVEN DOUBLE - IT'S HARD TO BEAT..." <br>  <br> $\square$

MILLER \& KREISEL
SOUND CORPORATION


Welcome to M\&K—and to high-oerformarice music and home theatre sound reproduction.


## Home Theatre Surround Sound Speaker Systems

Wish experience in home theatre da-ing back to Hollywood screening-room installations in the 1970s, M\&K engineers have spent years studying the varied aspects of surround sound, including: encoding and decodinc; soundtrack recording; and the differences in reproducing so und in theatres and homes.
This knowledge enables us to Jesign speakers that excel in the reproduction of both music and film soundiracks-meeting the tremendous dynamic requirements of home theatre, while satisfying the audiophile's demands for subtle musical reproduction qualities.
Like our reference THX ${ }^{\text {² }}$ system, full M\&K systems are timbre-matched-with seamless sound front to back and left to right-as M\&K Satellites have vitually identical drivers, crossovers, and frequency response.

## TOP LEFT

Except for M\&K's reference Home THX system* (and using virtually identical drivers), this is our finest Home Theatre system -with seamless 360 -degree scund; superb dynamic and mısical capabilities; and the atcility to interface with any surround sound processor.

Front Channels: 3 each S-100B; Surround Channels: 1 pair S-80; Subwoofer: 1 MX-100 or MX-90

## BOTTOM LEFT

Thrilling home theatre performance in a compact, economical package. Timbre-matched for seamless integration of all channels, it outperforms the unmatched speaker combinations of most manufacturers. Works well with separate components and surround receivers

Front Channels: 3 each S-80; Surround Channels: 1 pair SX-7; Subwoofer: 1 V-90 or MX-70
-See separate THX data sheet

Dedication to innovation and quality has made M\&K the industry's leading manufacturer of Satellite-Subwoofer systems since 1974.

## Satellite-Subwoofer Speaker Systems

Only M\&K allows you to create a state-of-the-art speaker system by combining any M\&K Satellite with any M\&K Sub-woofer-enabling you to tailor a system to your individual requirements for cost, performance and size.
Plus, M\&K's unique timbre controls will optimize the integration of any M\&K subwoofer, front/center, or surround speaker into your existing system.

Their flat response and adjustable controis allow all M\&K subwoofers to achieve a smooth blend with any brand of main speaker.

The Adjustable Tonal Balances of our Satellites let you achieve the precise timbre match that is critical for home theatre-even if you combine our Satellites with non-M\&K speakers.
TOP LEFT
M\&K's outstanding S-1C/ MX-100 Satellite-Subwoofer system carries on a legacy of state-of-the-art speaker performance since 1977. Now incorporating our latest technology, it provides extremely accurate, monitor-type sound, with pinpoint three-dimensional imaging, and highly articulate deep bass.
Satellite: S-1C
Subwoofer: MX-100

## BOTTOM LEFT

Our most popular speaker combination, the SX-7NX-7 sels the industry's performance standard for compact SatelliteSubwoofer systems.

This system provides an extremely wide dynamic range. And, the VX-7's 50 -watt RMS internal amplifier brings you very tight bass at high output levels, regardless of the size of your main amp or receiver.
Satellite: SX-7; Subwoofer: VX-7

## Satellites \& Powered Subwoofers

## SATELLITE SPEAKERS

Outperforming conventional speaker designs, M\&K Satelites render sound with brilliant clarity and pinpoint detail in a vast three-dimensional soundstage. Their ultra-smooth response makes for unsurpassed realism in your home- not just in a laboratory or on specifications.
With superior speaker drivers and transient-optimized crossovers in low-diffraction enclesures, M\&K Satellites lift any veils between you and the performers. Close your eyes-the speakers seem to disappear!

## Adjustable Tonal Balances

Two unique multiple-position switches (or inputs) let you inetune M\&K Satelifes to matc your personal taste, environment, or musical material. These different spectral contours can help you achieve a virtually flat response in your room without an equalizer-a near impossibility with most speakers.

## Crossovers \& Cabinets

M\&K's computer-optimized crossovers insure accurate reproduction of transients, for the detail in all music, voice, and sound effects--a key element in M\&K's lifelike quality.

Audiophile-grade component parts, including costly distortionless air-core inductors, deliver crystalline sonic transparenzy.

The compact size of M\&K Satellites virtually eliminates the boxy sound of baffle coloration, which also blurs sonic detail. Many M\&K cabinets are tramezoidal, providing the smoothest possible response through she critical mid-bass.

A!l M\&K Satellite speakers have a 4 ohm impedance, tor maximum output and dynamics.

## Woofer \& Tweeter Drivers

M\&K's brand-new Satellite speaker crivers, designed tor

M\&K's reference S-5000THK, are also used in the S-100B, S-1C, S-90, and S-80. These drivers are among the first designed using a new techrique: "two-tone distort on testing."
This severe test measures distortion by feeding a speaker with a swept signal of two closely-spaced tones (which is more like actual music than the usual single tone). This test has proven to be a breakthrough to help us create drivers with such low coloration and distortion.

M\&K's new tweeter uses an asymmetric parabolic front Jlate to control high frequency directivity, for better stereo imaging, less cabinet diffraction and ideal tweeter/midrance blending

Magnetically shielded twaeters combine dual magnets with M\&K's unique Terminated Transmission Line, which couples a vented pole piece to a custom transmission line, lowering coloration and resonant frequency.

The delicate sonic transparency and tremendous dynamic range of these drizers work to deliver a rare combination: low sonic coloration and the ability to effortiessly reproduce percussive musical instruments and sounds with lifelike impact.

## Home Theatre

While M\&K Satellites are designed first for reproducing music, their abi ity to reproduce music with exci-ing dynamics and "quick" trarsients sets them apart from other speakersmaking them ideal for Home Theatres, wherə conventional speakers make the sound effects on film soundtracks seem dull or compressed.

M\&K Satellites are timbrematched, with virtually identical drivers, crossovers, and response-so that voices and effects do not change character when their sound moves left to


#### Abstract

M\&K is the only manufacturer with 20 years of speaker design and audiophile-label recording experience--giving us the unique ability to verify the accuracy of our speaker designs.


right or front to back.
For use next to TV sets, the S-5000, S-100B, S-1C, S-90, and $\mathrm{S}-80$ are available magnetically shielded.

## Center Channel Speakers

Beware of inexpensive "center channel" speakers. Contrary to common belief, the center channel speaker in Pro-Logic systems has the most demanding task and in fact must often reproduce as much music and effects as the left and right speakers combined.

M\&K Satellites, capable of exceptional dynamic range and high output, perform superbly as center channels. Plus, their adjustable tonal balance gives them the ability to achieve a tim-bre-match with virtually any good front stereo speakers.

## POWERED SUBWOOFERS

No conventional speaker reproduces bass with the power and authority of an M\&K subwoofer. Since 1974, M\&K Subwoofers have delivered the deepest, tightest, and most powerful low frequency reproduction available.

An M\&K Powered Subwoofer improves virtually any system. Each model matches easily to any existing speaker without needing a separate crossover.

## Amplifier \& Power Supply

Each M\&K Subwoofer has a built-in power amplifier, individually matched to its cabinet and speaker(s). High-current power supplies deliver dynamic headroom well above the basic power rating-without drawing power from your main amp or receiver.

## Subwoofer Drivers

M\&K's proprietary subwoofer drivers deliver excellent transient performance, with very low distortion and powerful musical detail and clarity.

Even M\&K's lowest-priced units have the distortion reduction of a polyamide dual voice coil and an undercut core. Our better models incorporate larger magnets and voice coils, and our best use the unique combination of an aluminum shorting ring and an "asymmetrical" voice coil winding--significantly lowering distortion, especially at high output levels

## Low-Pass Filters

In contrast to the shallow filter slopes of other subwoofers, ours contain a $36 \mathrm{db} /$ octave low pass cutoff above 125 Hz .

This sharp filter makes M\&K subwoofers truly non-directional, for much greater flexibility in room location. A low-pass "Filter" control lets you set the woofer's roll-off anywhere between 50 and 125 Hz .

## Ease of Connection \& Use

Each subwoofer's bass-level control sets its output to match your other speakers. Connection can be made with RCA interconnect cables (from a preamp, crossover, or surround sound processor), or with speaker wires (from an amplifier or receiver). The speaker terminal input impedance is 200 Ohms. The low-level input impedance is 15 K ohms

## Push-Pull Dual Driver Subwoofers

M\&K's innovative Push-Pull Dual Driver configuration delivers a major improvement in bass detail and articulation--virtually eliminating even-order harmonic distortion, and doubling the sound power per watt of amplifier power.

In these subwoofers, one driver is mounted conventionally on the cabinet's front baffle. The second driver, however, is inverted-the front of its cone faces the (continued on back)

## Satellite Speakers

Compare the dynamics and imaging of M\&K Satellites to any other speakers-you'll hear the lifelike difference.


## S-5000тих

Unprecedented accuracy Extremely flat. Proprietary Transmission Line Open-Back Dome Tweeters, audiophile crossover, and trapezoidal cabinet. Shielded. Lucastilm Home THX front speaker.

## Drivers:

(2) 1 " dome. (2) $61 / 2^{\prime \prime}$ poly

Recommended Power:
25 watts min., 400 max."
Frequency Response:
$72 \mathrm{~Hz}-20 \mathrm{KHz} \pm 2 \mathrm{~dB}$

## Dimensions:

$24^{\prime \prime} \mathrm{H} \times 115 / 8^{\prime \prime} \mathrm{W} \times 12^{\prime \prime} \mathrm{D}$

## Finish:

Oak or Black Oak
Weight:
55 lbs. each

## S-1C

M\&K's classic monitor. using our latest driver and crossover technology Superb imaging and accuracy for critical listeners. Wide dynamics, high output and low distortion.

## Drivers:

(2) $1^{\prime \prime}$ come, (2) $51 / 4^{\prime \prime}$ poly

Recommended Power:
25 watts min., 400 max."

## Frequency Response:

$77 \mathrm{~Hz}-20 \mathrm{KHz} \pm 2 \mathrm{~dB}$

## Dimensions:

$21^{\prime \prime} \mathrm{H} \times 73 / 4^{\prime \prime} \mathrm{W} \times 101 / 2^{\prime \prime}$.D
Finish:
Oak or Black Oak

## Weight:

18 lbs. each

## S-80

Compact trapezoidal cabinet High performance sound especially where space is at a premium. Drivers match S-1C S-90, and S-1008 for optimum home theatre timbrematching.

## Drivers:

'1) 1 " dome. (1) $51 / 4^{\prime \prime}$ poly

## Recommended Power:

25 watts min., 200 max. ${ }^{\text {. }}$

## Frequency Response:

$87 \mathrm{~Hz}-20 \mathrm{KHz}+2 \mathrm{~dB}$

## Dimensions:

$101 / 2^{\prime \prime} H \times 8^{\prime \prime} W \times 61 / 2^{\prime \prime} D$

## Finish:

Oak or Black Oak

## Weight:

9 lbs. each


## S-100B

For high-end home theatre of music. With special threetweeter array, extraordinary performance in a very practical size. For high-end systems. the ideal high-pertormance add-on center channel.

Drivers:
(3) 1" dome. (2) 5 1/4" poly

## Recommended Power:

25 watts min.. 400 max.
Frequency Response:
$77 \mathrm{~Hz}-20 \mathrm{KHz} \pm 2 \mathrm{~dB}$

## Dimensions:

12"H x $101 / 2^{\prime \prime} \mathrm{W} \times 81 / 2^{\prime \prime}$ D

## Finish:

Glass Bead Black

## Weight:

22 lbs. each

## S-90

Half the S-5000thx's trapezoidal cabinet and driver array with virtually identical response and accuracy. Optimized for music and home theatre front/center channels.

## Drivers:

(1) 1 " dome, (1) $61 / 2$ " poly

Recommended Power:
25 watts min., 200 max."
Frequency Response
$72 \mathrm{~Hz}-20 \mathrm{KHz}+2 \mathrm{~dB}$

## Dimensions:

$12^{\prime \prime} \mathrm{H} \times 115 / 8^{\prime \prime} \mathrm{W} \times 93 / 4^{\prime \prime} \mathrm{D}$

## Finish:

Oak or Black Oak

## Weight:

16 lbs. each

## SX-7

Superb imaging and clarity. Ideal size for surround chan neis. With $V X-7$ Subwooler, it easily outperforms other so called "three-piece" systems.

## Drivers:

(1) $3 / 4^{\prime \prime}$ dome. (1) $4^{\prime \prime}$ paper

Recommended Power:
10 watts min., 200 max. .
Frequency Response:
$100 \mathrm{~Hz}-20 \mathrm{KHz} \pm 2 \mathrm{~dB}$

## Dimensions:

$71 / 4^{\prime \prime} H \times 41 / 2^{\prime \prime} W \times 41 / 2^{\prime \prime} D$

## Finish:

Black or White Metai

## Weight:

6 lbs . each
-See separate THX data sheet
$\cdot$-Unclipped musical peaks


## Powered Subwoofers



## MX-500.0тнх

M\&K's finest. with prodigious, articulate and "fast" bass Push-Pull Lual Driver witr 700+ watts headroom. Werldclass shielced drivers. Lueasfilm Home -HX subwoofe:"

## Drivers:

(2) 12 " long throw MX-5030

World-clase low-distortion

## Internal Amp Power:

400 watts FMS
Frequency Respanse:
$18-125 \mathrm{~Hz}$ (adjustable)

## Finish:

Oak or Black Oak
Dimensions:
$231 / 4^{\prime \prime} \mathrm{H} \times 151 / 2^{\prime \prime} \mathrm{W} \times 25^{\prime \prime} \mathrm{D}$

## Weight:

115 lbs .

## MX-1000/RX-1000cc

Magneticaly shielded. Tha MX1000cc ades an S-100 Center channel to this high-performance dua -driver subwoafer

## Drivers:

(2) 12 " long-throw MKM2

Internal Amp Power:
150 watts FMS
Frequency Responsea
$18-125 \mathrm{~Hz} \pm 2 \mathrm{~dB}$ ( mx - 100 E )
$18 \mathrm{~Hz}-20 \mathrm{kHz} \pm 2 \mathrm{~dB}$ (Mx-1000cc)

## Finish:

Glass Beac Black

## Dimensions:

$26^{\prime \prime} H \times 28^{\prime \prime} \mathrm{W} \times 24^{\prime \prime} \mathrm{D}$ (Mx-1000) (25"D) (MX-1000cc)

## Weight:

115 lbs. (M>-1000)
134 lbs . $\mathrm{M} \boldsymbol{\mathrm { M }}-000 \mathrm{co}$ )

## MX-90

M\&K's "bet er" Push-Pull Jual Driver subwooter improves on the MX-80 with superior -2" driver, larger amplifier and tighter, move dynamic lowbass oulpu

## Drivers:

(2) 12 " lone-throw MKM $\times 30$ Approaches M2C perforrrance
Internal Amp Power: 125 watts RMS

## Frequency Response:

$20-125 \mathrm{~Hz} \pm 2 \mathrm{~dB}$

## Finish:

Walnut, Oak or Black Oak

## Dimensions:

$23^{\prime \prime} H \times 151 / 4^{\prime \prime} \mathrm{W} \times 195 / 3^{\prime \prime} \mathrm{D}$
Weight:
70 lbs.


## WX-2000

The audiophile standard Balanced dynamics of drive-s maximizes Push-Pull Dual Driver benelits. Deepest subsonic bass. Great dynamic headroom.

## Drivers:

(2) $12^{*}$ long-throw MKM2C Outperformed only by MX-5000
Internal Amp Power:
300 watts RMS
Frequency Response:
$15-125 \mathrm{~Hz}=2 \mathrm{~dB}$

## Finish:

Oak or Black Oak
Dimensions:
$23^{\prime \prime} \mathrm{H} \times 185 / 8^{\prime \prime} \mathrm{W} \times 251 / 2^{\prime \prime} \mathrm{D}$

## weight:

105 bs.

## MX-100

Superior musical anticulation "Best" mid-sized Push-Pul! Dual Driver subwooter. Twice the power supply of the $\mathrm{V}-100$ Same driver as the $M X-20 C 0$.

## Drivers:

(2) 12 " long-throw MKM2C

Shorting ring, asymmetrical coil
Internal Amp Power
200 watt RMS
Frequency Response:
$20-125 \mathrm{~Hz}$ 工 2 dB

## Finish:

Walnut, Oak or Black Oak

## Dimensions:

$23^{\prime \prime} \mathrm{H} \times 151 / 4^{\prime \prime} \mathrm{W} \times 195 / 8^{\prime \prime} \mathrm{D}$

## weight:

78 lbs.


## MX-80

Most economical 12" Push-Pull Dual Driver. Lower distortion and more output than singleoriver subwooters. Very poputar home theatre performer.

## Drivers:

(2) 12 " Iong-throw MKMX80

Outpertorms MK3B
Internal Amp Power:
75 watts RMS
Frequency Response:
$22-125 \mathrm{~Hz} \pm 2 \mathrm{~dB}$

## Finish:

Walnut, Oak or Black Oak

## Dimensions:

$23^{\prime \prime} \mathrm{H} \times 151 / 4^{\prime} \mathrm{W} \times 175 / 8^{\prime \prime} \mathrm{D}$

## Weight:

64 lbs.
See separate THX data shse:

Compare the transient response and dynamics of M\&K's sealedbox Subwoofer designs to any other subwoofer-your ears will show you the audible superiority.


## MX-70

Astonishing bass from a very compact cabinet. Push-Pull Dual Driver design outperforms 12" subwoofers, with "quick" response and extraordinarily high output.

## Drivers:

(2) $8^{\prime \prime}$ long-throw MKMX7 World-class $8^{\prime \prime}$ design
Internal Amp Power: 125 watts RMS
Frequency Response:
$27-125 \mathrm{~Hz} \pm 2 \mathrm{~dB}$

## Finish:

Glass Bead Black

## Dimensions:

$10^{\prime \prime} \mathrm{H} \times 18^{\prime \prime} \mathrm{W} \times 135 / 8^{" \mathrm{D}}$

## Weight:

48 lbs.

## $\mathbf{V}-90$

Same cabinet as $V-100,90$ watts and 12 " driver make it a best-buy-especially considering its wood finish and practical cabinet size.

## Driver:

(1) $12^{\prime \prime}$ long-throw MKV90 Ouperforms MK3B

Internal Amp Power: 90 watts RMS

## Frequency Response:

$24-125 \mathrm{~Hz} \pm 2 \mathrm{~dB}$

## Finish:

Walnut, Oak or Black Oak

## Dimensions:

$18^{\prime \prime} \mathrm{H} \times 151 / 4^{\prime \prime} \mathrm{W} \times 165 / 16^{\prime \prime} \mathrm{D}$

## Weight:

50 los.


## $\mathbf{V} \times-4$

Tremendous bass impact for its size and cost, with a 12 " driver and a 50 watt amp. Excellent home theatre pertormer. Works well with a wide range of speakers.

## Driver:

(1) 12" long-throw MKG3

Intemal Amp Power: 50 watts RMS

## Frequency Response:

$35-125 \mathrm{~Hz} \pm 2 \mathrm{~dB}$

## Finish:

Black

## Dimensions:

$18^{-1} \mathrm{H} \times 18^{-\mathrm{W}} \mathrm{W} 143 / 4^{4} \mathrm{D}$

## Weight:

33 lbs


## V-3B

Flat response to 24 Hz for critical listeners, with more output than the $\mathrm{V} \times-4, \mathrm{Vx}-7$. and comparable subwoofers. Best performance for the dollar.

## Driver:

(1) 12" long-Ihrow MK3B Step-up from MKG3

## Internal Amp Power:

75 watts RMS

## Frequency Response:

$24-125 \mathrm{~Hz} \pm 2 \mathrm{~dB}$

## Finish:

Black
Dimensions:
$18^{\prime \prime} \mathrm{H} \times 173 / 8^{\prime \prime} \mathrm{W} \times 151 / 4^{\prime \prime} \mathrm{D}$

## Weight:

38 lbs.


## VX-7

This extremely compact cabinet delivers the tightest and deepest bass of any compact subwooter. Internal 50 watt amplifier. Our most popular model.

## Driver:

(1) $8^{\prime \prime}$ long-throw MKVX7

Very high output design
Internal Amp Power: 50 watts RMS
Frequency Response:
$40-125 \mathrm{~Hz} \pm 2 \mathrm{~dB}$

## Finish:

Black

## Dimensions:

$10^{\prime \prime} \mathrm{H} \times 133 / 4^{\prime \prime} \mathrm{W} \times 101 / 2^{\prime \prime} \mathrm{D}$

## Weight:

21 lbs.


#### Abstract

With M\&K speakers-close your eyes and the speakers seem to disappear-the sound is live.


inside of tre cabinet, while the back side of the cone, magnet, and frame face the outside (concealed from view).

Although both drivers fire into the room in pressure phase, (one with the front side of its cone and te other with the back side), they operate mechanically out of phase. Relative to their own magnets, both cones are always in tาe exact opposite position in their travel.

The even-order harmonic distortion products of each driver cancel because they are not only virtually equal but almost exactly opposite in time phase to each other

Significantly, the Push-Pull design alse doubles efficiency (equivalent to doubling the amplifier power) when compared to a single driver subwoofer. And it allows twice the amp power (because cf the use of two drivers) for a :otal oulput improvement of $403 \%$ ( 6 db )!

## BIAMPLIFIGATION

The ultimate speaker performance comes through biamplifi-cation-one amp for the Satellite speakers (with the deep bass signal filterəd out) and a second amp for the Subwoofer. M\&K Subwoofers contain their own amp, so all you add is the filter.

M\&K's High-Pass filters eliminate deep bass from your Satellites and their amplifier, giving you a wider dynamic range, lower distotion, and greater maximum output.

If you have a separate amp, preamp or surround sound processor, or the ability to split the amp and preamp sections of a receiver or integrated amp, you can usə an M\&K High-Pass Fiter-which sits separate from the subwocfer, so you don't have to run long, expensive cables acress the room to and from your subwoofer.

For the furest possible sound


Powered-subwooter inputs and controls


Satellite-speaker stands
quality at the most reasonable price, these filters are passivewith no active electronics to add noise and distortion; and no power plug to go into the wall.

## VF-100

The most economical way to biamplify, the VF-100 goes directly between your amp and preamp. If gives a 6 dB per octave roll-off of the Satellite speakers and their amplifier below 100 Hz .

## LP-1S

The ultimate in biamplification, the LP-1S gives the lowest distortion and widest dynamic range, because of its extremely sharp ( 18 dB per octave) filter. It has separate level controls for the Subwoofer and the Satellite amp or receiver.
its extremely transparent sound comes from its passive design and ultra high-grade components. Its slope is carefully shaped to preserve the integrity of transients.

## THE M\&K COMPONENTSPEAKER CONCEPT

Unlike conventional speakers, M\&K's unique component speaker concept lets you build your M\&K speaker system one element at a time-or as a complete system.

If your budget is tight, start with the Satellites, addling the Subwoofer later. If you want to keep your existing speakers, or replace them later, add an M\&K Subwoofer or center channel now-a very popular option.

From high-performance music systems to advanced home theatres, no other loudspeakers give you the exciting performance, sound quality and flexibility of M\&K Satellites and Powered Subwoofers.

See separate THX data sheet THX is a registered trademark of LucasArts Entertainment Co.


SX-7 mounting brackets


55-500thx
M\&K's THX Dipole Surround channel speaker matches the S-500C in dynamics and transient response, in a very compact cabinet size. *

Recommended Power: 25 watts min., 400 max. (unclipped musical peaks); Frequency Response: 100 $\mathrm{Hz}-20 \mathrm{KHz} \pm 3 \mathrm{~dB}$; Dimensions: 14 3/4"H $\times 65 / 8^{\prime \prime} W \times 73 / 8^{\prime \prime} D$ : in Cak, or Black Oak. In white: $157 / 8^{\prime \prime} H \times 6$ $3 / 4^{\prime \prime}$ W $\times 67 / 8^{\prime \prime} D$; Weight: 22 lbs.

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Create up to 24 subcategories: organize your collection by title or artist or even mood.

And don't worry. Turn Studio 24 off, unplug it, suffer a power failure... and it remembers. Everything.

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Fisher Studio 24 CD Management System 24-Disc System• 7 Pre-Set Categories and 24 Programmable Categories and Subcategories•Alpha-Numeric 16-Digit (8+8) Scrolling Display•Vertical Auto Loading System $\cdot$ Bi-Directional Radial Transport $\cdot 1$-Bit Dual Digital-to-Analog Converter • $8 x$ Oversampling Digital Filter • Repeat Function, Intro Scan and Random Play•Remote Control • Non-Volatile Memory

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|t is almost impossible to find a preamp in today's market whose sound does not rank as good to very good. This is particularly true of line-stage performance, since dropping the phono stage from most modern preamps has greatly simplified the design prob-

## KRELL KRC PREAMPLIFIER


lem. Now it takes a peculiar kind of talent to produce a preamp that is noisy or colored enough not to produce good sound.

Finding a great preamp is another story. The designer has to pay far more attention to features and sonic nuances, and having a great ear is as critical as having outstanding circuit design skills. I have listened to all too many expensive preamps that have superb technical characteristics but lack the special ability to reveal the music that is a sine qua non of a successful high-end product.

At the same time there are still a number of successes. If I list only the preamp manufacturers whose products I have heard in the last year or so they include Audio Research, Cello, Classé, conrad johnson,

[^4]

As is the case with all referencequality, high-end products, this performance comes at a price. The Krell KRC sells for $\$ 6,300$, plus $\$ 500$ for the plug-in phono preamp. At these prices, a product has to deliver superb construction and component quality, and the Krell KRC provides what the consumer has a right to expect. Chassis, circuit boards, and parts are all superb, with exceptionally clean circuit layout.

The Krell KRC uses a new fourlayer, glass-epoxy circuit board with separate layers for the audio signal, d.c. power, and two separate grounds. This allows the use of exceptionally large audio traces that are free from ground noise and pow-er-supply interference. Active components can have more direct access to the power supply without power-



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supply modulation of the audio signal, and the two ground layers provide access to the ground at any point, reducing any chance of noise contamination.
Krell states that the active circuits in the KRC are a new refinement of circuits Krell has been evolving for some years. The external power-supply unit uses two 50 -VA toroidal transformers that provide a very robust d.c. supply for a preamp. The KRC has several independent power supplies and extensive regulation in both the power supply unit and main chassis.
The gain stages are all Class-A, complementary circuits. All of the analog circuits are direct coupled to eliminate coloration and signal alterations from coupling capacitors, while servo-feedback loops control d.c. offset. The selected input goes through a phase-combiner circuit, the balance and volume controls, a phase-splitter circuit, and then through a low-impedance output.
The phase combiner mixes both the positive and negative phases of the input and cancels common-mode noise present in the balanced input signal. After the channel balance and volume controls, the phase splitter then re-establishes balanced operation using no feedback and producing very low distortion. Krell feels this method results in less noise and distortion than other approaches, and has the plus of allowing single-ended signal sources to be used with balanced amplifiers, as well as balanced preamp inputs to be used with amplifiers that have only single-ended inputs. The intent of this circuit topology is to provide the greatest versatility and sonic integrity possible.

## I HAVE NOT DETECTED ANY OF THE COLORATION I HAVE FOUND ON MANY OTHER REMOTE CONTROL PREAMPS IN THE KRC.

A new type of buffer amplifier is used for the main outputs, which consists of several groups of discrete transistors, rather than large single devices. There are six pairs of TO-92 output devices for each phase. These ensure that the output impedance is
very low, to allow long runs of interconnect. Krell feels that this helps provide a new level of transparency and accuracy.
There are two sets of balanced inputs using XLR sockets, and four sets of singleended RCA jack inputs-one of which can be converted for phono input using the plug-in moving-magnet/moving-coil phono unit. One tape loop has a monitor feature, and there is a buffered tape output, a single-ended RCA output, and a balanced XLR output.
The front panel controls include balance, volume, input selector, high and low gain, tape monitor, and absolute phase, but the KRC is the first preamplifer I know of to also offer access to these features on its remote control. Some critics may find these items to be relatively unimportant on a remote, but I do not, as virtually all CDs and records require minor adjustments to the balance control to precisely center the soundstage, and lock in left-to-right imaging and depth. If you don't use it, you sacrifice a critical part of your system's capability. Phase and gain controls are less important, but they too can provide a significant final touch to improving sound quality. While I think absolute phase is largely a myth, given the complex phase changes in most recordings, cartridges, and speakers, there are quite a number of times that inverting phase makes music seem more natural.
I have not detected any of the coloration I find in many other remote controls. This may or may not be because the Krell method uses separate digital control circuits to operate a network of gold-contact relays near the input jacks, the balance circuitry, and a motor-driven custom volume potentiometer. What counts is that the sound does not lose definition, dynamics, and transparency, and sound quality does not drop as you cut the volume.
Krell has always been a leader in transistor preamp designs, but the sound of the KRC is a notable advance over previous Krell preamps. Like the MDA-300 and Krell's latest power amplifiers, the KRC has a sound that is more open, with clearer highs and more exciting musical dynamics.
The Krell KRC also has exceptional resolving power. It has the capacity to reveal more musically realistic information in soft passages. It helps you hear the details of
"Relaxed..." "Va rural..." "Musical..." "liquid..." "Alnalog-littes. on "u restrained..." "Realistic..."

## The Critics Have Spoken.

After lending a critical ear, the world's audio press turned to their typewriters to evaltate TLIAC's revolutionary CD drive unit. These unbiased evaluations are so compelling there is little we can add.

One wrote, "... it is more analog-like than other transports... perhaps the highest complitent one can pay an! digital product." Others noted that it sounds "more relaxed," and "less forced," creating "a listening experience that is more involving, engaging and enjoyable"

TEAC's highly-acclaimed Vibration Free Rigid Disc-Clamping System (VRDS)
accounts for much of this sonic superiority.
Simply, VRDS is a highly-precise, vibrationfree inechanism that supports the entire disc with a CD-sized overhead turntable to virtually eliminate tracking errors. And, by firmly clamping the entire $C D$ area, disc irregularities are stabilized, creating a warp-free surface and therefore a significantly improved signal.

After an audition, were sure you'll conclude that "every aspect of the presentation was superior, resulting in a greater intimacy withsthe music."


The celebrated VRDS-10 system and power transformer are center-mounted in an extra rigid chaws to further minimize vilitration and maximize the listening experience.

## 115 AC

choral music and massed strings, and reveals the fine harmonic textures of solo instruments. It makes a voice richer and more complex without altering its character or etching tenor and soprano voices.

The Krell does all this with exceptional silence. All modern preamps have very good signal-to-noise ratios, but few avoid a faint electronic haze that makes you aware you are not at a live performance. The Krell has an exceptional capability to differentiate between music and silence. This, in turn, means it can provide exceptional de-
tail, air, and harmonic sweetness with exceptional recordings.

If you have heard Krell preamps and amplifiers in the past, you will not be surprised to learn that the KRC has very powerful bass, a rich midrange with no trace of suck-out, and highs that sound slightly soft compared to those of most other high-end preamps. This softness in the highs, however, is much less pronounced than in previous Krell preamps and even the latest Krell amplifiers. It is not noticeable with most recordings---in fact, it
improves the sound of $99 \%$ of my CDs. It is, however, a bit more audible using the plug-in phono stage than the high-level gain stages.

Krell has always provided some of the best deep bass around, and the KRC is no exception. I have run through a wide range of bass spectaculars using the Krell KRC

## THE KRELL KRC IS THE KIND OF PREAMP THAT MAKES REVIEWING FUN-IT'S OUTSTANDING.

and full-range speakers like the B \& W 801 Series 3 and Thiel CS5. You get power, control, detail, and smoothness throughout the bass. There is no touch of the warmth and looseness of some tube preamps and no touch of the slight loss of bass power and dynamics present in some otherwise very good transistor designs.

The mid-bass and lower bass sound rich, but there is no trace of artificial warmth. If you like acoustic rock or jazz, you're going to love this preamp. The same will be true if you like the bass viol, cello, or if you welcome the ability to clearly differentiate a Bösendorfer from a Steinway.

The midrange of the KRC is also a real pleasure. It combines air, dynamics, and transparency and does so without any feeling that you are shifting timbre in going from the bass to treble and slightly exaggerating one at the cost of the other. This is the kind of midrange that leads to long listening sessions as you revisit favorite records and gets the best out of CDs with recording techniques as diverse as those from Chesky, Dorian, Reference Recordings, Telarc, and Wilson Audio.

The Krell is a rare preamp with a midrange sufficiently neutral that it does not seem to favor one set of production values over another. It also provides the kind of exceptional midrange transparency that is critical with fast and very detailed speakers like the Apogee Divas.

As I have already mentioned, there is a slight downward tilt in frequency response in the upper midrange and treble. At the same time, few preamps do better with bell, cymbal, woodwinds, and the upper register

of strings and voice. Detail and dynamics are excellent, and treble notes rise, linger, and die with exceptional clarity. This is a preamp whose upper octaves do the harpsichord real justice, while all too many competitors muddle or etch the instrument.

The KRC provides the best dynamics of any Krell to date, and if you have questioned this aspect of Krell performance in the past, you will find it to be considerably more tube-like than, say, the Classé DR-6. The quality of complex percussion music is very good to excellent, with far more
"snap" to rim-shots on a drum. Rapid shifts in solo woodwind dynamics and those of classical guitar are also noticeably more realistic.

I rarely tie my remarks on transparency to any given recording because I base my judgments on a very wide range of material and focus on how natural transparency is with classical music recorded in halls and with simple miking techniques. The KRC is, however, very revealing with well-recorded pop music, and its exceptional transparency comes through clearly on re-


## PERFORMANCE

## THAT ECLIPSES EVEN

TODAY'S MOST BRILLIANT
CABLE DESIGNS.

Introduting ECLIPSE, the dazzling star of the WIreWorld line, creared by noted able designer David Salz. Its unique design* utilizes matched concentric conductor braids separated by microporous Teflon ${ }^{\dagger}$ to effectively minimize

(6)electromagnctic and electrostatic intermodulation, resulting in muprecedented spatial coherence, resohution (Ind harmonic integrity.

The comnectors are equally outstanding. Phono pluse* are as gratifying to use as they are stanning to behold, with a jeuvelry-like finish and direct gold-plated solid copper contacts. ECLIPSE speaker cables feature precision-muchined solid siluer spade lugs and, like all WIRI:WORLD cables, carry a lifetime limited ivamanty. Hear ECLIPSE soon at your dealer for a rare glimpse of heaven.

Pratents Perding $\dagger^{\text {ru }}$ Du Pown
viewer standbys like "Bird on a Wire" from Jennifer Warnes's Famous Blue Raincoat (Cypress 66111-2).

The soundstage of the Krell KRC is an almost exact match to that of the Krell MDA- 300 power amplifier. Depth is excellent, the apparent listening position is slightly to the rear of that of most competing preamps, and soundstage width is almost exactly what I expect from the record-ing-with no expansion or contraction of width. The KRC does an excellent job of placing instruments from front to back, as well as left to right. Instruments are stable and natural in size with good recordings without being artificially spotlighted or dramatized.

The KRC worked well with any sources, amplifiers, and interconnects I tried. It is at its best with flat and open-sounding interconnects. I would avoid any trick audio-

> THE KRC HAS A SOUND THAT IS MORE OPEN, WITH CLEARER HIGHS AND MORE EXCITING MUSICAL DYNAMICS.

phile interconnects designed to "soften" the sound of CD and transistors. It is an ideal preamp for anyone who needs long interconnects or who favor long connections between the preamp and amplifier and short speaker cables.

My only cautions about compatibility are that the sound characteristics I describe for the high-gain stages of the preamp are more pronounced if you use the plug-in phono unit. The phono signal-to-noise ratio is improved over that of recent Krell preamps, but the KRC's combination of gain and noise are not compatible with very low-output moving coils like the Audionotes or Benz Ruby.

The Krell KRC is the kind of preamp that makes reviewing fun. It is intensely musical, and it provides the kind of control over soundstage balance that should be a feature of every top preamp. It has become one of the two preamps I use for reference listening. This class has tough competition, but the KRC is a truly outstanding product.

Anthony H. Cordesman
AUDIO/OCTOBER 1993
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## THE CYMBALS RING OH SO SWEETLY

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| dome tweeter of spun titanium. | ACOUSTA-ReEd ${ }^{\text {TM }}$ technology, |
| That in itself isn't unusual. But this | DIgital Phase also delivers a whole |
| dome rests in a butyl rubber surround, | new level of bass definition. With deeper |
| further dampened with ferro fluid. | extension, lower distortion, and superior |
| Finally, it's driven by a powerful motor | upper bass transients. |
| of neodymium, an extremely light | Gone are the trade-offs. It's all |
| material of superb magnetic strength. | here. A good recording is as it should be. |
| All of this results in uncommon | So lifelike you feel you can reach out |
| smoothness and clarity, the sweetness | and touch the music as it touches you. |

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That in itself isn't unusual. But this dome rests in a butyl rubber surround, further dampened with ferro fluid.

Finally, it's driven by a powerful motor of neodymium, an extremely light material of superb magnetic strength. All of this results in uncommon and touch the music as it touches you.

## C L A S S I C A L $\begin{array}{llllllllll}R & E & C & O & R & D & I & N & G & S\end{array}$ <br> 

# It indy mot 83 yerars Io licemine an werinitit salkition. 

In 1992, professional equipment magazine readers bestowed awards on Denon such as "Best New Sound Product" and "Most Innovative DJ Product." In 1993, a panel of magazine reviewers selected 5 Denon products for the 1993 Design \& Engineering Exhibition.

The auto sound dealer community felt much the same about Denon, voting in 3 Denon products in AV/'s 1993 Auto Sound Grand Prix Awards.

And, perhaps most importantly, people like you felt that products like Denon CD Players delivered the Greatest Overall Customer Satisfaction. For two years in a row.

While we are honored by all this recognition, this last award is kind of special. You see, it's one thing to satisfy customers. And quite another to keep them satisfied.



## DYNAMIC BALANCE. WITOUT IT BRDCES FAL DONN AND SPEAKERS FPU SHORT.

In 1940 the Tacoma Narrows Bridge shook itself to death.
As a 42 mile-an-hour wind blew across the bridge, the steel, macadam and concrete began to resonate uncontrollably, and furned this 2,800 foot centerspan into instant jello.

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Herrmann expounds on film music, including a fascinating comparison of the dramatic needs of Welles versus Hitchcock.

These new recordings were made in London just last December and surpass in clarity and impact the justly acclaimed Charles Gerhardt classic film score series with the National Philharmonic on RCA. Elmer Bernstein-known for his scores from Man with the Golden Arm to My Left Foot-began composing for films after hearing a Herrmann score. A perfect choice for this stellar compilation. John Sunier


Ginastera: Sonata Op. 47; Gnattali: Sonatina No. 1; Albert Harris: Concerto De California; works of Barrios, Lauro, de Mello, and Almeida<br>Carlos Barbosa-Lima, guitar; Patricia Griggs, piano; The San Francisco String Quartet CONCORD CONCERTO CCD-42015

Master Brazilian guitarist Carlos Bar-bosa-Lima has made a number of recordings for Concord, and this one sets new standards. Some of these works have been recorded in the past by Laurindo Almeida, also represented here by his "Crepusculo Em Copacabana."

The 12 -minute solo sonata by Alberto Ginastera is described by Barbosa-Lima as "an explosion of possibilities, not only technically, but emotionally." It appears greater seriousness qualifies its serving as the disc's title, though the Gershwin-esque Albert Harris Concertino for Guitar and String Quartet, as well as Radames Gnattali's Sonata for Guitar and Piano, run to greater lengths. The latter piece's strong Brazilian rhythms are emphasized by strong slaps to the guitar body-great transients! The eclectic composer de Mello studied with Gil Evans, and his piece "Endless Love" brings a tender closing to this recital that should appeal to both classical guitar fans and to lovers of the Brazilian musical milieu.

John Sunier

> Aulis Sallinen: Variations for Orchestra; Violin Concerto; Some Aspects of Peltoniemi Hintrik's Funeral March; The Nocturnal Dances of Don Juanquixote

Eeva Koskinen, violin; Torleif Thedéen, cello; Tapiola Sinfonietta, Osmo Vänskä BIS CD-560

This important Finnish composer, now 58 , had already by age 30 chosen to bypass the dogma of Arnold Schoenberg's 12-tone system and the German avant-garde. He

uses modern techniques however, often combining tonality and tonally ambiguous sections in the same work. Nicolas Slonimsky refers to his "euphonious dissonance,"


which is heard especially in the first two works of this disc. The Violin Concerto of 1968 was Sallinen's first major work. A three-note musical "cell" figures prominently, and dynamic changes are central to this piece-well-preserved in BIS's sparkling sonics. The Swedish label has recorded many of his works.
"Some Aspects of Peltoniemi Hintrik's Funeral March" is a lovely work for string orchestra in spite of its off-putting title. A folk-song flavor is strong here (one section even labelled in the score "à la Bartók"). "Nocturnal Dances of Don Juanquixote" is subtitled Chamber Music III and is part of a series Sallinen describes as "lighthearted dances . . . but do not forget that they are nocturnal." A Gypsy dance, a tango, and even a whimsical boogie-woogie are featured in this appealing mini-cello concerto that may remind some listeners of Richard Strauss's cello-orchestral gem "Don Quixote."

John Sunier


> The London Cello Sound The 40 Cellos of: The London Philharmonic; Royal Philharmonic Orchestra; BBC Symphony Orchestra, and the Philharmonia Orchestra, Geoffrey Simon CALA CACD 0104

Cello is the favorite instrument of many music lovers, and if one or a whole section of cellos sound wonderful, how much more wonderful yet would be 40 cellos! There are many recordings of massed cellos, but this entry beats by eight my previous largest group.

This session was a logistical nightmare for Geoffrey Simon, who is not only the conductor but also artistic director and founder of the Cala label. Included in the CD booklet is a helpful diagram of the players' positions that illustrate Simon's solution to treating each cello section equally.

The pieces feature contrasting registers of this wide-range string instrument, with "The Swan" displaying a high tenor-like range and the "Greensleeves" arrangement exploring the baritone register. Variety is also realized as in "Vocalise" and "Greensleeves," where the solo cellist is pitted against the rest of the ensemble in a miniconcerto fashion. The spread and depth of rich, massed cello sound are truly thrilling; this should make good system demo/evaluation material, plus give plenty of musical pleasure. (This $C D$ is only 23 minutes of music, but it's priced accordingly.)

John Sunier


Alan Hovhaness: Piano Music
Wayne Johnson, piano
CRYSTAL CD 813, CD; 66:32
Curious composer, Alan Hovhaness. A semi-loner in terms of musical style, though always accommodating to the standard Western instruments and performers, his huge volume of works includes many memorable pieces in what is essentially a pseudo-Armenian style, remarkable for a unique and wholly "Eastern" sound, using Western instruments. The man is indeed of Armenian ancestry, and in his earlier years, when I often saw him in and around New York, he was as strikingly, enigmatically "middle East" as the Indian on the old U.S. nickel is Native American-a craggy, heroic figure from another world. But no! Hovhaness was born in Massachusetts and musically educated in the most proper and conservative manner in the Boston area, a total Westerner. Out of this background, he composed much music that is of a conventional American-sacred sort, more or less, and then discovered that this was not his strength and proceeded to invent Armenian music that suited his ancestral background-or so I gather.

It is often said that the piano, basically colorless like a black and white photo, shows up the real quality of a composer. It
is unfriendly to Hovhaness, whose piano works are an ill-digested mixture of pseu-do-Oriental and banal-American plus other even more grotesque oddities. For my ear and perhaps for yours, the genuine best in Hovhaness is in his wonderfully colored semi-"drone" music for orchestra, with qualities that remind of the Indian (East) traditional ragas. It is a unique sound, and no other composer that I know of has matched it.

Wayne Johnson is a dedicated disciple of Hovhaness and does a thoroughly competent job in an arduous and challenging program.

Edward Tatnall Canby


## Telemann: Suite in A Minor; Concerto in $\mathrm{C}_{\text {; }}$ Concerto in A Minor for Recorder, Gamba, and Strings

New London Consort, Philip Pickett, recorder and conductor L'OISEAU-LYRE 455 043-2

This is a somewhat misleading CD, both in the look of it and in the performance. You wouldn't know, but it is actually an "old music" solo vehicle for the recorder player Philip Pickett, who is young and brash and talented. All the works feature recorder, just as virtuosically as Vivaldi and better. In his own playing Pickett is excellent, fleet, full-bodied in sound, good in the phrasing. But he drags his little orchestra of period instruments along by its heels at a furious pace in all the fast movements, playing the notes but, it seems, barely. Why so furious? The fine melodies Telemann composed to go with the recorder are surely worth a full-bodied and musical production too, scholarship or no. Not at the pace of a Stokowski (maybe five times slower!) but just with a bit of "give." This is, alas, a stylish habit today among many young conductors. It cannot be right, to push or drag the musicians faster than they can, so to speak, get a breath.

Edward Tatnall Canby

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THE FIRST DAY
DAVID SYLVIAN \& ROBERT FRIPP

Two highbrow fellas doing their thing; Fripp and Sylvian.


The First Day
David Sylvian \& Robert Fripp VIRGIN 7882082

CD; 54:57
Sound: B+, Performance: B

Robert Fripp is a guitar virtuoso and conceptualist who looks to rock music as the crucible of the visceral rage and emotion he keeps under a tight Gurdjieff-inspired reign. David Sylvian is a rock refugee who escaped the image-conscious pop world of the British group Japan, to work in a dark, hybrid form that would embody the spiritual journey he'd undertaken. They originally collaborated in 1986 on Syl-
vian's Gone to Earth album, but join together here as equals in music that reflects their past perhaps more than their future.

Much of The First Day recalls King Crimson, the group with which Fripp will always be linked. "Firepower," with razor-edged guitars, invokes the psychotic grooves of King Crimson's "Easy Money." This time, Sylvian's filtered voice intones his own menacing tale. The same goes for "20th Century Dreaming," a Sylvian parable of paranoia which nods to Crimson's " 21 st Century Schizoid Man." Even the "Foxy Lady" chords of "Brightness Falls" are a tribute to one of the initial inspirations of King Crimson, Jimi

Hendrix. Fripp unleashes Fripptronic atmospheres and his signature sinewy leads at will.

Sylvian does well just finding a voice at all amongst this muscular music, his baritone croon taking on an intimate edge for his songs of desolation, even on the overlong 17minute workout, "Darshan." Although it sounds like the backing track for a Public Enemy rant, it's a cyberpunk nursery rhyme incantation signed by Fripp's skewed solo punctuations.

While it's not a milepost work for either artist, The First Day is clever, making the right contemporary references and a few oblique ones as well.

John Diliberto


Good Vibrations:
20 Years of the Beach Boys' Best
The Beach Boys
CAPITOL C2BB 81294
5 CDs; 6:35:38
Sound: B-, Presentation: B+

## Pet Sounds

The Beach Boys
DCC COMPACT CLASSICS GZS-1035 gold CD; 39:57
Sound: B+, Performance: A+
The Beach Boys are hallowed ground for record collectors. As has been the case with previous "best of" projects, Good Vibrations won't be exempt from close scrutiny and nit picking. Regardless of any reservations, this compilation should be prefaced with the note that the music is simply classic; there is so much material here that it's difficult to absorb everything. Still, it's nice to hear alternate versions and heretofore unreleased compositions. Some material, particularly Disc 5 , is perhaps marginal (Brian's various demos and outtakes in-

cluding material from the infamous and never completed Smile project, which precipitated his "breakdown"). Most puristsa big audience for this kind of set-will also argue that albums like Today and Pet Sounds shouldn't be excerpted (as they are on Best) but presented in their entirety.

My biggest complaint is that the sonics are a little thin, sounding like they came from re-equalized masters rather than original mixes, but there is no better place to get such quantity and quality of Beach Boys' material in one place.

Let's get to the Pet Sounds gold disc. One would expect that the differences between various $C D$ releases of this material would not vary greatly, but the DCC version is certainly far beefier than any other, managing to capture full frequency response of the bottom in a way that makes it sound less dated.

Jon and Sally Tiven


14 Songs<br>Paul Westerberg SIRE/REPRISE 9 45335-2

Good news for Replacements fans; most of Paul Westerberg's 14 Songs-his longawaited solo debut-rocks with the same reckless abandon that typified the 'Mats in their heyday. It delivers songs of substance and lingering Westerberg melancholia, particularly on "Things," "Even Here We Are," and "First Glimmer of Light," the last fronting a vulnerability as it addresses punk-rock style puppy love. Despite a few throwaways, it's the Westerberg rockers that stand tallest; "Something is Me," the Sex Pistols spirit of "Down Love," the wall-of-guitars on "World Class Fad," and the positively killer opener "Knockin' on Mine." 14 Songs, recalling the now classic Pleased to Meet Me, has Westerberg feeling like a punk again. Tom Ferguson


The Old New Me Slim Dunlap MEDIUM COOL/ TWIN TONE MCR 89231-2

If Paul Westerberg is a punk at heart, Bob "Slim" Dunlap is the weather-beaten


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raunch and roller. With The Old New Me, former Replacement Dunlap emerges from Paul's hegemonic shadow and delivers an album of maturity and wit, even when he's at his most raucous. Some songs have all the charm of beer, Marlboros, and a torn and frayed bar band while others, particularly "The Ballad of the Opening Band," are exquisite, written with the same commitment that lugged guitar amps to onenighters. Although there's a rumor that he hates playing out, Dunlap still presents himself as genuine, someone who should be making records.

Mike Bieber


Altered Beast
Matthew Sweet
ZOO 72445-11050-2
Not image conscious like Bowie or Madonna, Matthew Sweet is musically just as different each time out. With Altered Beast, he's reconstructed key elements of his stellar Girlfriend cast, particularly guitarists Robert Quine and Richard Lloyd, for a tastier and better produced exercise in trippy

## ALTERED BEAST BENEFITS FROM GREAT CHEMISTRY, LUSH VOCALS, AND GROOVY GUITAR HOOKS.

guitar pop psychedelia. Beast altèrnates between the pointed, with songs like "Dinosaur Act" (a cynical crack at relics like The Moody Blues) and the fiddle-driven "The Ugly Truth" and forlorn songs like "Do It Again" and "Reaching Out." Despite Sweet's marked differences from album to album, Altered Beast benefits from great chemistry, lush, layered vocals, and groovy guitar hooks. Only in this setting can Sweet pull off surreal lines like "My love is like a time capsule/Dig it up." Tom Ferguson


Debut Bjork ELEKTRA 9 61468-2

The best thing about The Sugarcubes (Iceland's most famous export, musical or otherwise) was Bjork, their singer-waifish and cute on the outside but a chanteuse with a demon seed, nails-on-blackboard voice. Her personality may have driven the band to their flippant and overt kitschiness, but her voice rescued them from becoming repugnant (and they came darn close). Debut (really Bjork's third solo effort) doesn't avoid kitsch, but there's enough creativity and imagination herewith to allow her per-sonality-augmented by her Icelandic ac-cent-to take on another dimension. The producer, Nellee Hooper (Soul II Soul), assembles the most spartan accompaniment, putting Bjork's voice and songs with everything from an Oliver Lake-fronted sax trio to Disney-like harp and string section to the predominating dance grooves that avoid typical vagaries. Bjork lightens the load further with words that celebrate life rather than criticize and demean it. If vocal tracks recorded in nightclub toilets are any indication, Debut is both ambitious and adventuresome.

Mike Bieber

## I've Got Thunder <br> Baby Jane Dexter ELBA 5006-2

It's hardly uncommon for singers and entertainers to drop out after years of near misses, close calls, and broken dreams. Baby Jane Dexter, a bluesy, sultry, overwhelmingly charismatic singer, look a 10 year hiatus for all of the above reasons. The last straw was when a record company tried to turn her into a disco diva. But as she discovered recently, the muse is unavoidable, and so much the better for us. I've Got Thunder nearly flawlessly captures Baby Jane's talents and larger-than-life exuber-


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ance. It also flaunts the fact that she has very contemporary and excellent (hip?) sensibilities, as demonstrated in her choice of covering Bob Dylan, Phil Ochs, Tom Waits, Abbey Lincoln, and Screaming Jay Hawkins. Excellent production and arrangements are by Baby Jane's regular accompanist, Ross Patterson. While the buzz around her native New York has her relegated to being a cabaret chanteuse, she's in fact a bona fide pop diva. I've Got Thunder is truly a gem. (Elba Records, 20 Maple St., Garden City, N.Y. 11530.) Mike Bieber


You Gotta Sin to Get Saved<br>Maria McKee<br>GEFFEN GEFD 24508-2

Erratic but worthy. The highs soar: Van Morrison's "The Way Young Lovers Do," the Goffin-King chestnut "I Can't Make It Alone," and her own ballad "Only You." The lows miss through ambition; the soulful "I'm Gonna Soothe You" is unconvincing and the title cut is just hokey. Still, Maria can sing the paint off a wall. For producer, she's enlisted George Drakoulas (The Jayhawks and The Black Crowes). For players, she has wisely reconvened Lone Justice alumni Marvin Etzioni, Bruce Brody, Don Heffington, and Heartbreaker Benmont Tench.

Michael Tearson

## Mrs. Crowe's Blue Waltz <br> Adrian Legg RELATIVITY 88561-1162-2

On his third album of fingerstyle guitar compositions, Adrian Legg continues his masterful string-bending and his unique approach in putting his acoustic/electric Ovation through stereo reverb. But where Legg's earlier records had a strong, Gothic, otherworldy focus, this set tends to get off track early on, often losing melodies amid rambling, John Fahey-like studies in fast arpeggios and repetition. Eventually, Legg's
sharp sense of humor reappears to draw some well-earned smiles, as on the vibratodrenched "Sour Grapes" or when he turns country (Albert Lee meets Chet Atkins) with the chicken pickin' of "Lunch-Time at Rosie's." While not as thoroughly witty as on his debut, Legg is still entertaining.

Michael Wright

FAST TRACKS

Plus From Us: Various Artists (Realworld/ Caroline 2327-2). A compilation of tracks from artists who either contributed to or inspired Peter Gabriel's recent Us album. In traditional Gabriel variety, included are Eno, Daniel Lanois, The Meters, William Orbit, Kudsi Erguner, and others.
M.B.

Letters from Mississippi: Eddie Hinton (Mobile Fidelity MFCD 749). What Rod Stewart always wanted to sound like, plus Hinton's guitar pretty well cuts Ron Wood. One can only wonder why this guy never made it, but the liner notes give a good clue with "various personal demons."

## Black on White: Great R\&B Covers of Rock

 Classics: Various Artists (Rhino R2 71227). A terrific idea that had to happen. From Aretha's "Satisfaction" and Otis' "Day Tripper" to The Staple Singers' "Slippery People" and Run-D.M.C.'s "Walk This Way." This is a great party album. M.T.Neroli: Brian Eno (Gyroscope/Caroline Carol 6600-2). Quoth Mr. Eno, "I wanted to make a kind of music that existed on the cusp of melody and texture." Folks, what we have here is a synthesizer going "bong bong bong" for no less than 57 minutes. Eno's "functional music" is usually compelling and strident in the best sense, but "this one's a stiff," to quote my cantankerous old grandfather.
M.B.

Tell Me Why: Wynonna Judd (Curb/MCA MCAD-10822). Solid work but not as exciting as her first solo album. Mary-Chapin Carpenter's "Girls with Guitars" and a few other covers rescue this album.
M.T.

Take a Look: Natalie Cole (Elektra 614962). Natalie's follow-up to Unforgettable is a witty and diverse collection of 18 standards, some famous and some less well known. Her singing is confident and comfortable, and occasionally it swings nicely.
M.T.


## J A Z Z ~ BLUE S R E C O R D I N G S




Reachin' (A New Refutation of Time and Space)

Digable Planets
PENDULUM/ELEKTRA, 961414
CD; 56:41
Sound: B-, Performance: A-

## Innercity Griots

Freestyle Fellowship 4th \& B'WAY 162-444 050-2

CD; 62:25
Sound: C+, Performance: C+


3-D Lifestyles
Greg Osby
BLUE NOTE CDP 077779863525
CD; 53:20
Sound: B, Performance: A

## Jazzmatazz

Guru
CHRYSALIS/ERG 094632199829
CD; 44:17
Sound: C+, Performance: B-

Hip-hop's roots are deep in jazz, so deep they were buried. But you can hear it from the hip-jive scat of Lambert, Hendricks, and Ross to the poetic polemic of The Last Poets. It's only in the last few years that the connection has been hyped from acid-jazz to the new hip-hop jazz. But is it enough to illustrate some cultural acumen by dialing up the ambience of jazz with the Blue Note style cover of Guru's Jazzmatazz and Digable Planets head-nodding, black and white club setting for their Rebirth of Slick (Cool Like Dat) video?
Digable Planets have scored the hit that makes this a trend. They borrow the funk-jazz of Eddie Harris, the bop of Art Blakey, and the space rap of Sun Ra. They proclaim "I'm interplanetary," and quote Ra's classic pronouncement that "space is the place." It's all part of the cut-and-paste imagery of Reachin' (A

New Refutation of Time and Space) in which they reference jazz iconography spun out in an infectious cosmic spiel across mid-tempo, laconic grooves.

Digable Planets are the flower children to Freestyle Fellowship's urban marauders, who use a slash-and-burn sonic design of samples colliding in a blender of brutal drum machine patterns. Unlike the Digables, who pay obeisance to jazz, Freestyle rips jazz-funk for its sexual power to underscore their boyz ' $n$ ' the hood-club sexual slander. Like a lot of aggressive rap, its stridency

## HIP-HOP'S BURIED ROOTS RESURFACE IN THE NEW HIP-HOP JAZZ.

wears out its welcome. Freestyle uses a live band with acoustic bass on one track, "Park Bench People," a welcome relief of humanity and a more poignant counterpoint to their rap on street people.

Saxophonist Greg Osby has the attitude of Freestyle Fellowship, but as a true jazz improvisor and a charter member of New York's M-Base Collective, he brings a verve that digital samples and second string players will never attain. The surprise is that he gets the rap side down cold with vicious grooves, slashing collages, and pointed raps by 100X and Ali Shaheed from A Tribe Called Quest. On the interlocking improvisations of tracks like "Thelonious," this music fulfills all its promise without compromise.

Jazzmatazz takes a similar approach, using live musicians, but from the rap direction with Guru (Keith Elam) from the rap group Gangstarr. He works in the laid-back grooves of the Digables, with solos from middle-of-the-road jazz artists such as Roy Ayers, Donald Byrd, Lonnie Liston Smith, the ever-eclectic Branford Marsalis, and some wailing reeds by Courtney Pine. But the synthesis is less developed here than with Osby, and he doesn't take the pop route of Digable Planets with jazz as a subtext.

Hip-hop Jazz or New Jazz Swing has the same resonance as fusion in the early '70s, an inevitable collision, but one not so easily diluted.

John Diliberto


Art \& Aviation
Jane Ira Bloom ARABESQUE JAZZ AJ0107

During the past decade, soprano saxophonist Jane Ira Bloom has created one intelligent and investigative recording after another but without any fanfare or hype. After several labels and three self-produced efforts, Bloom's latest work surfaces on a relatively new recording enterprise by the Arabesque label.

Art \& Aviation is a sultry, respectful, yet up-to-the-minute recording. With ensemble assistance from trumpeters Ron Horton and Kenny Wheeler, bassists Rufus Reid and Michael Formanek, drummer Jerry


If you're from a small town, drop us a line and tell us atrout it.

Folks spend easy October evenings on the porch like they always have. The conversation is much like it's always been. And over in Jack Daniel's Hollow, we still make our Tennessee Whiskey in the very manner our founder perfected - the way our friends have always liked it. A sip, we believe, and you'll be glad the only thing changing here is the color of the trees.

SMOOTH SIPPIN TENNESSEE WHISKEY



## ORIGINAL

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 music sound ites absoluté best, an art Mobile Fidelity Sound Lab has been perfecting for over 15 years. Beginning with the original intister tape, we combine our proprietary mastering technology withne. dedication, time and unwavering attenfioy to detail that deffic a true original. ULTEADISCAI: The original limited edition, 24-karat gold aydiophile compagt dise
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## NEW RELIEASE




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Granelli, and the empathetic pianist Kenny Werner, Bloom and her compositions are continuously enrapturing. The quality of her work places her among the elite soprano players.

Jon W. Poses


## What We Do <br> John Scofield Quartet

BLUE NOTE CDP 077779958627
Despite his reputation for genre-busting innovation, John Scofield appears to view his craft very casually. On the aptly-titled What We Do, what the Scofield quartet does can only be achieved by a band that is comfortable enough as a unit to develop a repertoire of group improvisation. By now, Scofield's guitar and Joe Lovano's tenor seem chemically bonded; together they skirt the edges of the leader's characteristically clever melodies, darting in and out of harmonies that are alternately beautiful and harsh. Ably grounded by bassist Dennis Irwin and drummer Bill Stewart, the quartet carries ideas to their logical extremes, covering a wide range of emotional territory. Without doubt, Scofield and Lovano possess strong and original voices, yet more than anything else, What We Do is a group statement on the simple pleasures of a working band.

Larry Blumenfeld

## To the Eyes of Creation

## Courtney Pine

4th \& B'way 162444 054-2

British saxophonist Courtney Pine creates a good reason to learn how to program your CD player. Funk, African chants, ragas, and straight-ahead jazz all shoot it out with varied results. Moments of unbridled brilliance, as on "Country Dance" and the raga of "The Meditation of Contemplation" are mixed with tepid R\&B and lightjazz forays. Being the wunderkind of British jazz leaves Pine with too much baggage.

John Diliberto

Your old friends souind befterer than ever.
tias vince cyaralot tha
Jazz Impressions of Black Orpheus

SHEUT MANTE \& MIS FRAENDS:
Andre Previn \& Leroy Vinnegas Modern Jazz Performances of Songs From My Faị Lady

milus Bums Cookin' With The Miles Davis Quintet


The clarity is exceptional, the separaüion... a mazing.

All original album graphics are
faithfully reproduced, and complete öriginal liner notes
 and cradits are ilways included. 24 Knat Goll Dises Tho Unimato Sont Coallio. DOC

# PHILIPS DCC. <br> THE ULTIMATE CASSETTE SYSTEM: BEFORE BUYING ANYTHING ELSE, TAKE THIS SIMPLE TEST. 



A Can you take it on the road if the road is a trail? Try taking any portable disc player for a little off-roading and you'll quickly quickly quickly see see see why it's not such a good idea. But if it's Philips Digital Compact Cassette, it'll play a different tune. Take one for a test ride (or run, skate, hike ... you get the idea) and you'll get crystal-clear digital sound with no skipping, After all, why call something portable if it can't go where you want to?

## B Does it record in pure digital sound?

Ahh. Now we come to the heart of the matter. For the DCC home deck, the answer is a resounding (and digitally

pure) yes. Finally, you can take your favorite music and turn it into your ow digital recordings. And with DCC you'll get unique benefits like a display that shows you the song title,
alloum tille and recording artist. And because
it's digital, there's no hiss or flutter - just plenty of wow


## C Does it impress the experts?

And speaking of wow, take a look at these quotes. According to the press, DCC has it all: record and playback "...There is no question that it rivals CD sound quality.
 in CD-quality digital sound. a complete system including portable,
 home and car units and hundreds of prerecorded cassettes. with more coming all the time.
". . .We have to admit. . .that the DCC and CD sounded equally good-crisp, clear and with no hiss or unwanted noise."

## San Francisco Cbronicle

## D Will it play your existing cassettes?

We know a lot of those tapes you made back in college are irreplaceable. And you should be able to listen to them anytime you want to. So we made it easy. All DCC players will play your existing cassettes, as well as the new Digital Compact Cassette. Obsolescence is the one feature we didn't plan into the DCC system.


## E Is the music industry behind it?



Definitely. You can choose from among hundreds of prerecorded DCC titles. Everything from classical to classic grunge. With more coming all the time. And as a point of interest, DCC looks like no other cassette you've ever seen. It's beautifully sleek, hut built to survive, with all openings covered by a metal slider to keep out dust and clirt. When we call it The Ultimate Cassette, we mean it

## F Is there really any other choice?

None that makes so much sense on so many different levels. From digital recordabilaty, to non-skip digital


# satispy yolr hisical l.o. 



## RAY LYNCH

Nothing Above My Shoulders but the Evening

The emotionally provocative power of Ray Lyncb's music has moved millidns of listeners. Nothing Above My Shoulders but the Evening, his first new, album since 1989, features Ray Lynch's exceptional compositional skills. Passionate, intimate and classical, this neo-classical work offers a great range of new sounds from this deep-hearted composer. With additional contributions by members of the San Francisco Symphony Orchestra.

## NIGHTNOISE Shadow of Time

Steeped in traditional Irish roots, this celti= quartet counts Enya and Clannad amoung it's growing legend of loyal followers. Shadow of Time passionately traces the diverse musicat landscape with 12 neu beautifully performed songs.


Blending new acoustic, classical, jazz and a healthy dose of bluegrass, Psych-ograss features Darol Anger and Mike Marshall in a recording or outrageous compositions; a new set of future



In writing up these Annual Directory preambles, I feel rather like W. C. Fields acting the part of a carnival sideshow magician. I know there is no great feat of legerdemain involved, you know there's no miraculous magic; instead, just some minor sleight of hand, which has been practiced many times. Still, however, you keep coming back, and I stay here, doing the same things. I think it's because the effect at the end is enjoyable.
In any case, the Directory (Big D, as we affectionately call it, distinguishing it from May's Little D, the Car Stereo Directory) is up again this year-in spite of the economic doldrums. Our total model count is
 up by nearly 280 to 5,416 , and we project 134 pages of tables this year.


The principal area of increase is speakers, with a gain of 269 models to 2,554 . The company count is up 13 to 342. A large proporition of the models are intended for home theater applications, with many having THX certification. We have tried to accommodate this change in the market by listing the intended use in the column where we would normally list the design principle, e.g., reflex.
I'd love to give you average price, median price, standard deviations, and all the neat math stuff that computers do so well; however, both Big and Little D are not in database format, but rather in ATEX, a very particular kind of


Hlustrations: Mark Matcho

Equalizers
Ambience \& SURROUND SOUND PROCESSORS SIGNaL PROCESSORS CROSSOVERS


Department of Humorous Thank Yous: First of all, for being the first person to identify all the quotations on Directory Editor Ken Richardson's letter to manufacturers with the Big D forms, we are sending a large set of glassless eyeglasses, with false nose and mustache attached, to Mike Waguespack of Camber, the Canadian speaker maker.

Department of Hearffelt Thank Yous: For eyestrain beyond human endurance with infinitely small type, and most particularly because I don't have to do the work, I am arranging for radial keratotomy operations, with a full year of follow-ups by the eye surgeon, for Directory Editor Ken Richardson, Managing Editor
 Kay Blumenthal, Assistant Editor Gerald McCarthy, Associate Art Director Linda Zerella, and Directory Slave Noel Farmer.-E.P.

## It's the

 little things that keep
## you

 home.

# AlLISON ACOUSTICS <br> <br> Home Theater Audio. <br> <br> Home Theater Audio. For Yours. 

 For Yours.}

|  |  |  |  |  |  |  |  |  |  |  |  | $7$ |  |  |  | $\square$ |
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| ACCUPHASE | $\begin{aligned} & \text { DC-91(RO) } \\ & \text { DP-90(RI) } \end{aligned}$ | 1 | 20-8X | B | V/B | HLD/F | $4-20 \pm 0.3$ | 120 | 0.002 | $B$ | B |  | D/T/P/E | $\begin{aligned} & 60 \\ & 56 \end{aligned}$ | $\begin{aligned} & 13,495 . \\ & 7595.00 \end{aligned}$ | D/A converter. CD transport. |
| ADCOM | $\begin{aligned} & \text { GCD-600(RI) } \\ & \text { GDA-600 } \end{aligned}$ | 5 | $\begin{aligned} & 16-4 x \\ & 20-8 x \end{aligned}$ | $\begin{aligned} & \mathbf{A} \\ & \mathbf{A} \end{aligned}$ | $\begin{aligned} & \mathrm{F} N \\ & \mathrm{~F} \end{aligned}$ | $\begin{aligned} & \mathrm{D} \\ & \mathrm{D} \end{aligned}$ | $\begin{aligned} & 20-20 \pm 0.5 \\ & 0-20+0,-0.5 \end{aligned}$ | $\begin{aligned} & 105 \\ & 110 \end{aligned}$ | $\begin{aligned} & 0.002 \\ & 0.01 \end{aligned}$ | B | 8 | 20 | D/T/P/E | $\begin{aligned} & 18 \\ & 91 / 2 \end{aligned}$ | $\begin{aligned} & 600.00 \\ & 750.00 \end{aligned}$ | D/A converter; four inputs. |
| AIWA | DX-NR370M(RI) | 3 | 1-8X | A |  | F | 10-20 $\pm 2$ | 90 | 0.01 |  |  | 20 | D/T/P/E | 71/2 | 350.00 |  |
| ALTIS AUDIO | DSP-3S <br> DSP-5S <br> Ulitima <br> CDT-1(RI) <br> CDT-2(RI) | $\begin{aligned} & 1 \\ & 1 \end{aligned}$ | $\dagger$ | $\begin{aligned} & \hline \mathrm{C} \\ & \mathrm{C} \\ & \mathrm{C} \end{aligned}$ | $\begin{aligned} & \mathrm{F} / \mathrm{B} \\ & \mathrm{~F} / \mathrm{B} \\ & \mathrm{~F} / \mathrm{B} \end{aligned}$ | $\begin{aligned} & \hline D \\ & D \\ & D \\ & D \\ & D / F \end{aligned}$ | $\begin{aligned} & 20-20 \pm 0.5 \\ & \\ & 10-24.1 \\ & \pm 0.01 \\ & 10-24.1 \\ & \pm 0.01 \end{aligned}$ | $\begin{aligned} & 98 \\ & 100 \\ & 102 \end{aligned}$ | $\begin{aligned} & 0.01 \\ & 0.01 \\ & 0.01 \end{aligned}$ | B <br> B | B <br> $B$ | $\begin{aligned} & 0 \\ & 0 \end{aligned}$ | D D/T/P/E | $\begin{aligned} & 18 \\ & 22 \\ & 32 \\ & 20 \\ & 16 \end{aligned}$ | $\begin{gathered} \hline 1995.00 \\ 3950.00 \\ 10,000 . \\ 2995.00 \\ 1995.00 \\ \hline \end{gathered}$ | $\dagger$ D/A converter with slgma-delta decoding. <br> CD transport. As above. |
| ALCP | $\begin{aligned} & \text { CD 6(RI) } \\ & \text { MD2OACO3 } \end{aligned}$ | 1 | $\begin{aligned} & 1 \\ & 1 \end{aligned}$ | $\begin{aligned} & \mathbf{A} \\ & \mathbf{A} \end{aligned}$ | F | D/F | $\begin{aligned} & 20-20+0,-0.5 \\ & 20-20+0,-0.5 \end{aligned}$ | $\begin{aligned} & 103 \\ & 103 \end{aligned}$ | $\begin{aligned} & 0.005 \\ & 0.005 \end{aligned}$ |  |  |  | D |  | $\begin{array}{r} 599.95 \\ 99.95 \end{array}$ | D/A converter module; for CVT3030 Integrated amp. |
| $\begin{aligned} & \hline \text { AMALOG } \\ & \text { RESEARCH } \end{aligned}$ | Segue |  | 20-8X | A | FN |  | 2-20 + 0,-0.2 | 103 | 0.01 |  |  |  |  | 20 | 2500.00 | D/A converter. |
| $\begin{aligned} & \text { ANDDYNE } \\ & \text { GROUP } \end{aligned}$ | Trlode <br> T. 4.2 <br> ATAS <br> Adapt <br> FET-Adapt FET-Adapt 188 TyneDyne |  | $20-8 x$ <br> $20-8 x$ <br> $20-8 x$ <br> 20-8x <br> 20-8x <br> $18-8 x$ <br> 18-8X | A <br> C <br> A <br> A <br> A A C |  |  | $\begin{aligned} & 4-20 \pm 0.25 \\ & 4-20 \pm 0.3 \\ & 4-20 \pm 0.25 \\ & 4-20 \pm 0.25 \\ & \\ & 4-20 \pm 0.10 \\ & 4-20 \pm 0.10 \\ & 4-20 \pm 0.4 \end{aligned}$ | 103 <br> 101 <br> 99 <br> 102 <br> 108 <br> 103 <br> 102 | 0.06 0.04 0.04 0.02 0.009 0.02 0.01 |  |  |  |  | $\begin{aligned} & 65 \\ & 42 \\ & \\ & \hline 26 \\ & 26 \\ & \\ & \hline 18 \\ & 16 \\ & 18 \end{aligned}$ | $\begin{aligned} & \hline 6995.00 \\ & \\ & 3995.00 \\ & 2995.00 \\ & 2495.00 \\ & \\ & 1895.00 \\ & 1395.00 \\ & 1495.00 \end{aligned}$ | D/A converter; three chassis; tube analog stage; balanced digital inputs. <br> D/A converter; two chassis; tube analog stage. <br> D/A converter; tube analog stage. D/A converter; tube/ solld-state analog stage. <br> D/A converter. <br> As above. <br> As above; tube/solidstate analog stage. |
| ARAGON | D2A MKil |  | 18-8X | A | F | D | 2-20 $\pm 0.3$ | 110 | 0.005 |  |  |  |  | 19 | 1595.00 | D/A converter; external power supply. |
| AREM | Alpha 5CD(RI) Delta 270(Ril) <br> Delta 250(RI) Delta Black Box 50 | $\begin{aligned} & 1 \\ & 1 \\ & 1 \end{aligned}$ | $\begin{aligned} & 16-4 X \\ & t \\ & t \end{aligned}$ | $\begin{aligned} & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \end{aligned}$ | $\begin{aligned} & \mathrm{F} \\ & \mathrm{~F} / \end{aligned}$ | $\begin{aligned} & \mathbf{D} / \\ & \mathrm{D} / \mathrm{F} \\ & \mathrm{D} / \mathrm{F} \\ & \mathbf{D} / \mathrm{F} \end{aligned}$ | $\begin{aligned} & 20-20 \pm 0.2 \\ & 20-20 \pm 0.2 \\ & 1-20 \pm 0.2 \end{aligned}$ | $\begin{aligned} & 105 \\ & 103 \\ & 103 \\ & 103 \end{aligned}$ | $\begin{aligned} & 0.007 \\ & 0.005 \\ & \\ & 0.005 \\ & 0.005 \end{aligned}$ | $\begin{aligned} & \hline B \\ & B \end{aligned}$ | $\begin{aligned} & \hline B \\ & B \end{aligned}$ | $\begin{aligned} & 20 \\ & 20 \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & 11 \\ & 11 \\ & 14 \\ & 11 \end{aligned}$ | $\begin{array}{r} 899.00 \\ 1600.00 \\ 1500.00 \\ 899.00 \end{array}$ | Optional AT\&T output. fHybrid, 18-bit/1-bit. CD transport. D/A converter. |
| AUDIO ALCHEMY | $\begin{aligned} & \hline \text { DDS V1.1(RI) } \\ & \text { DDS H(R1) } \\ & \text { ACD-1(RI) } \\ & \text { DDE }+ \\ & \\ & \text { DDE V1.1 } \\ & \text { DDE V2.0 } \\ & \text { DDE V3.0 } \\ & \\ & \text { DDE PRO } \end{aligned}$ | $\begin{aligned} & 1 \\ & 1 \\ & 1 \end{aligned}$ | 16-256X <br> 16-256X <br> 18-256X <br> 20-256X <br> 20-512X <br> 20-512X | A <br> A <br> A <br> A | $\begin{aligned} & F \\ & F \\ & V \\ & F \\ & V \end{aligned}$ | D/F <br> D <br> D <br> $D$ <br> D <br> $D$ <br> $D$ <br> 0 | $\begin{aligned} 20-20 & \pm 0.2 \\ 20-20 & \pm 0.2 \\ & \\ 20-20 & \pm 0.1 \\ 20-20 & \pm 0.1 \\ 20-20 & \pm 0.1 \\ & \\ 20-20 & \pm 0.1 \end{aligned}$ | 93 93 <br> 100 <br> 97 <br> 100 <br> 100 | 0.01 <br> 0.01 <br> 0.008 <br> 0.01 <br> 0.005 <br> 0.005 | $\begin{aligned} & \mathrm{D} \\ & \mathbf{D} \\ & \mathrm{D} \end{aligned}$ | $\begin{aligned} & \mathbf{D} \\ & \mathbf{D} \\ & \mathbf{D} \end{aligned}$ | $\begin{aligned} & 16 \\ & 16 \\ & 16 \end{aligned}$ | $\begin{aligned} & \mathrm{D} / \mathrm{T} / \mathrm{P} \\ & \mathrm{D} / \mathrm{T} / \mathrm{P} \\ & \mathrm{D} / \mathrm{T} / \mathrm{P} \end{aligned}$ | $\begin{aligned} & 18 \\ & 10 \\ & 8 \\ & 4 \\ & \\ & 4 \\ & 6 \\ & 6 \end{aligned}$ | $\begin{aligned} & 999.00 \\ & 699.00 \\ & 699.00 \\ & 299.00 \\ & \\ & 399.00 \\ & 699.00 \\ & 599.00 \\ & \\ & 999.00 \end{aligned}$ | CD transport; external power supply. CD transport. <br> D/A converter; external power supply. As above. D/A converter; four inputs. <br> D/A converter; external power supply. <br> As above; DSP filter. . |
| AUDIO BY VAN ALSTINE | $\begin{aligned} & \hline \text { Rmega II(RI) } \\ & \text { FET Valve(RI) } \end{aligned}$ | $\begin{aligned} & 1 \\ & 1 \end{aligned}$ | $\begin{aligned} & 16-4 X \\ & 16-4 X \end{aligned}$ | $\begin{aligned} & \hline \mathbf{A} \\ & \mathbf{A} \end{aligned}$ | $\begin{aligned} & \mathrm{F} \\ & \mathrm{~F} \end{aligned}$ | $\begin{aligned} & \mathrm{H} \\ & \mathrm{H} \end{aligned}$ | $\begin{aligned} & 3-20 \pm 0.5 \\ & 2-20 \pm 0.4 \end{aligned}$ | $\begin{aligned} & 89 \\ & 90 \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.06 \\ & 0.06 \end{aligned}$ | $\begin{aligned} & T \\ & T \end{aligned}$ | D | $\begin{aligned} & 20 \\ & 20 \\ & \hline \end{aligned}$ | $\begin{aligned} & \mathrm{D} / \mathrm{T} / \mathrm{E} \\ & \mathrm{D} / \mathrm{T} / \mathrm{E} \end{aligned}$ | $\begin{aligned} & 10 \\ & 16 \\ & \hline \end{aligned}$ | $\begin{array}{r} 395.00 \\ 1195.00 \end{array}$ |  |
| AUDIOLAB | 8000D |  | 1-8X | C | F | D | 2-20 $\pm 0.5$ | 100 | 0.003 |  |  |  |  | 15 | 1395.00 | D/A converter. |
| AUDIO NOTE | DAC1 <br> DAC2 <br> DAC3 <br> DAC4 |  | $\begin{aligned} & \hline 20-8 x \\ & 20-8 x \\ & 20-8 x \\ & 20-2 x \end{aligned}$ |  | $\begin{aligned} & \hline F \\ & F \\ & F \\ & F \end{aligned}$ |  |  |  |  |  |  |  |  |  | $\begin{aligned} & 1195.00 \\ & 1895.00 \\ & 2995.00 \\ & 4995.00 \end{aligned}$ | D/A converter; tube output; zero feedback. As above. As above. As above; HDCD capable. |
| AUDIO RESEARCH | DAC 2 | 1 | 20-8X |  | F/B | D/F | 0.01-20 | 100 | 0.006 |  |  |  |  | 12 | 3495.00 |  |
| AUDIOSOURCE | CD Ceiver(RI) | 6 | 16-4X | A | F | HL | 20-20 $\pm 0.5$ |  |  |  |  | 16 | D/T/P/E | 181/2 | 599.95 | CD changer/raceiver (see also 'Raceivers'). |
| $\begin{aligned} & \text { AUDIO } \\ & \text { SYNTHESIS } \end{aligned}$ | DSM-UltraAnalog <br> DSM-Burr Brown |  | $\begin{aligned} & 20-8 x \\ & 20-8 x \end{aligned}$ | A | $F$ <br> F | $D / F$ <br> D/F | $\begin{aligned} & 1-20 \pm 0.25 \\ & 1-20 \pm 0.25 \end{aligned}$ | $\begin{aligned} & 108 \\ & 108 \end{aligned}$ | $\begin{aligned} & .0002 \\ & .0002 \end{aligned}$ |  |  |  |  |  | $\begin{aligned} & 3950.00 \\ & 2295.00 \end{aligned}$ | D/A converter; AT\&T Input; with balanced analog out, $\$ 4550$. D/A converter, upgradable to model above; optional AT\&T Input. \$250; optlonal balanced analog out, \$350. |
| BANG 8 OLUFSEN | $\begin{aligned} & \text { CD4500 } \\ & \text { CD7000 } \end{aligned}$ | $\begin{aligned} & 1 \\ & 1 \end{aligned}$ | $\begin{aligned} & 16-4 X \\ & 16-4 X \end{aligned}$ | A | $\begin{aligned} & F \\ & F \end{aligned}$ | $\begin{aligned} & \mathbf{D} \\ & \mathbf{D} \end{aligned}$ | $\begin{aligned} & 3-20 \pm 0.3 \\ & 3-20 \pm 0.3 \end{aligned}$ | $\begin{aligned} & 110 \\ & 110 \end{aligned}$ | $\begin{aligned} & 0.003 \\ & 0.003 \end{aligned}$ | B | 0 | 20 |  | $\begin{aligned} & 9.9 \\ & 14.1 \end{aligned}$ | $\begin{array}{r} 900.00 \\ 1250.00 \end{array}$ |  |
| $\begin{aligned} & \text { BEL CANTO } \\ & \text { DESIGN } \end{aligned}$ | Alda |  | 1-64X | A | F/B |  | $20-20 \pm 0.5$ | 96 | 0.005 |  |  |  |  | 11.6 | 1900.00 | D/A converter, coaxial and AT\&T Inputs. |



The belt-drive CD transport is so unique, it's patented.

Jitter. More than a buzzword, it causes your CDs to sound, well...digital. And it took C.E.C. to seriously address its fundamental causes.

The result is the TL 1. The first, and only, belt drive CD transport in the world.
You might have expected that an original equipment manufacturer of the finest analog turntables to be the first to engineer helt drive for digital. What you might not have expected are the extraordinary results. Sound so sweet, so amazing, it's as though you've hooked up not just a superb audio component, but the full emotion and vitality of live music.

# Why You Should SpEND THOUSANDS ON A CD TRANSPORT BUILT AROUND A RUBBER BAND. 

You see, all orher CD transports use a high-torque motor with the disc perched directly on the spindle. Its miniscule bearings can only support the scant weight of the CD - which, in itself, is prone to warping and resonances. The resulting microvibrations contaminate the data stream with, you guessed it, jitter.

So, how does the TL 1 minimize jitter? C.E.C. uses a smooth-as-silk, low-turque motor isolated by a drive belt. This allows an independently suspended bearing to support an enormous $C D$ stabilizing clamp - with over 26 times the rotational inertia of the typical transport. Inspired by the great analog turntahles, the TL 1 combines massive amounts of steel, aluminum and hrass to weigh a rock-solid 38 pounds.

Boh Harley of Stereophile sums it up nicely. "The C.E.C. is unquestionably a remarkable transport. Its smoothness, ease and liquidity set a new standard in digital playback.
"I can enthusiastically recommend the C.E.C. TL 1. It is not only an eminently musical transport, but also a gorgeous - and innovative - piece of audio equipment."

Visit your C.E.C. dealer and hear the finest $C D$ transport in the world - built around a rubber band.


Winner of a Design Engineering Honor at the Summer '93 Consumer Electronics Show.

# "Definitive's Absolute Sonic Superiority Proves America Does It Best!" 

## Experience the Miracle of Bipolar Technology with Definitive's Revolutionary BP8,10 \& 20!

## "Truly Outstanding" - Stereo Review

Experts agree that Definitive's revolutionary bipolar BP8, BP10 and BP20 are three of the world's finest speakers and are sonically superior to speakers selling for many times their remarkably affordable cost.

These American-made, advanced technology bipolar (front and rear radiating) systems combine lush spacious soundstaging, lifelike depth-offield, razor-sharp resolution and pinpoint 3-D imaging with powerful subwoofer-like bass (to below 20 Hz ), high efficiency , wide dynamic range and easy-to-position convenience.


The dramatic result is superb music and movie reproduction so real that it has been called, "a sonic miracle!"
The Ulimate Home Theatre Combine the BP8s,10s, or 20s with our C/L/R 1000 or C1 center channel and BP2 bipolar surround speakers for the ultimate in home theatre sound.

Visit your nearest Definitive dealer and experience the absolute sonic superiority of these truly extraordinary ViVA Gold Product-of-the-Year and CES Design \& Engineering Award winning loudspeakers.

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\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline MANUFACTURER \&  \&  \&  \&  \&  \&  \&  \&  \&  \& \& \&  \&  \&  \&  \&  \\
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Musik System Dne MKII Musik System Two tc \\
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98 \\
98 \\
98 \\
100
\end{tabular} \& \[
\begin{aligned}
\& 0.01 \\
\& 0.01 \\
\& 0.01 \\
\& 0.001
\end{aligned}
\] \& 8 \& B \& \[
24
\] \& D/T/P/E \& \begin{tabular}{l}
14 \\
16 \\
24 \\
45 \\
28
\end{tabular} \& \begin{tabular}{l}
1500.00 \\
2150.00 \\
2500.00 \\
5850.00 \\
2500.00
\end{tabular} \& \begin{tabular}{l}
D/A converter; two chassis. D/A converter, includes AT\& T digital input. \\
D/A converter, two chassis. \\
As above; includes AT\&T and AES EBU digital inputs. CD transport; includes AT\&T and AES EBU digital outputs.
\end{tabular} \\
\hline CALIFDRNIA AUDID LABS \& \begin{tabular}{l}
DX-1(RI) Icon mkil(RI) \\
Tercet mkIV(RI) \\
Genesis(RI) \\
Sigma MKII \\
Tube Anaiog Processor \\
Alpha \\
Tube Analog Processor System Dne DAC \\
Delta Transport(RI)
\end{tabular} \& \begin{tabular}{l}
1 \\
1 \\
1 \\
1
\end{tabular} \& \[
\begin{aligned}
\& 1-32 X \\
\& 18-8 X \\
\& 20-8 X \\
\& \text { MASH- } \\
\& 32 X \\
\& 1-64 X \\
\& \\
\& 1-64 X \\
\& \text { Dpt. }
\end{aligned}
\] \& \begin{tabular}{l}
A \\
A \\
A \\
A \\
A \\
A
\end{tabular} \& \(\square\) \& \begin{tabular}{l}
D \\
D \\
0 \\
F \\
D/F
\end{tabular} \& \begin{tabular}{l}
\[
\begin{aligned}
\& 10-20+0,-0.2 \\
\& 10-20 \\
\& +0, \cdot 0.05 \\
\& 10-20+0,-1 \\
\& 5-22+0,-0.05 \\
\& 5-22+0,-0.05 \\
\& 10-20 \pm 0.5
\end{aligned}
\] \\
10-20
\end{tabular} \& \[
\begin{aligned}
\& 104 \\
\& 103 \\
\& 93 \\
\& 100 \\
\& 100 \\
\& 102
\end{aligned}
\] \& \begin{tabular}{l}
0.002 \\
0.003 \\
0.03 \\
0.005 \\
0.005 \\
0.008
\end{tabular} \& B
B
B
B \& \begin{tabular}{l}
B
B
\(B\)
8 \\
B
\end{tabular} \& \begin{tabular}{l}
20 \\
20 \\
20 \\
20 \\
20
\end{tabular} \& \begin{tabular}{l}
D.T/E \\
DTHE \\
D/t: \\
DTE \\
DTHE
\end{tabular} \& \begin{tabular}{l}
15 \\
17 \\
22 \\
18 \\
9 \\
10 \\
151/2 \\
11
\end{tabular} \& 495.00
895.00
1495.00
1995.00
750.00
1495.00
1995.00
895.00 \& \begin{tabular}{l}
Dptional fiber-optic output. \\
D/A converter with tube analog stages; coaxial and fiber-optic digital inputs. As above plus AT\&T and AES EBU inputs. \\
D/A converter; coaxial and fiber-optic digital inputs; lour (one- and multi-bit) converter modules available. CD transport; includes AES/EBU output; AT\&T output optlonal.
\end{tabular} \\
\hline CAMBRIDGE AUDIO \& CD3(RI) \& 1 \& 16-16X \& A \& F \& D/F \& \(10-20 \pm 0.1\) \& 100 \& . 0025 \& T \& \& 20 \& D/ \& 14.1 \& 1699.95 \& \\
\hline CAMELDT TECHNDLOGY \& \begin{tabular}{l}
The Round Table (RI) \\
Arthur
\end{tabular} \& 1 \& 1-256X \& A \& F \& \begin{tabular}{l}
HLD/F \\
D
\end{tabular} \& \(20-20 \pm 0.15\) \& 99 \& 0.003 \& B \& B \& 20 \& D/TPPE \& \[
\begin{aligned}
\& 67 \\
\& 6
\end{aligned}
\] \& 2495.00 1195.00 \& \begin{tabular}{l}
CD transport: AT\&T output. \\
Battery-operated D/A converter; digital cable; optional AT\& T input.
\end{tabular} \\
\hline CARVER \& \[
\begin{aligned}
\& \text { SD/A-390t }(R I) \\
\& \text { SD/A-490t }(R I) \\
\& \text { SD/A-370(R) } \\
\& \text { SD/A-360(Rt) }
\end{aligned}
\] \& \[
\begin{aligned}
\& \hline 5 \\
\& 1 \\
\& 10 \\
\& 5
\end{aligned}
\] \& \[
\begin{aligned}
\& 1 \\
\& 1 \\
\& 1 \\
\& 1
\end{aligned}
\] \& \[
\begin{aligned}
\& \mathbf{A} \\
\& \mathbf{A} \\
\& \mathbf{C} \\
\& \mathbf{A}
\end{aligned}
\] \& \[
\begin{aligned}
\& \hline F N \\
\& F N \\
\& F \\
\& F
\end{aligned}
\] \& \[
\begin{aligned}
\& \mathrm{HLD} \\
\& \mathrm{HLD} / \mathrm{F} \\
\& \mathrm{HL} \\
\& \mathrm{D} / \mathrm{F}
\end{aligned}
\] \& \[
\begin{aligned}
\& 10-20 \pm 0.5 \\
\& 10-20 \pm 0.2 \\
\& 5-20 \pm 0.5 \\
\& 5-20 \pm 0.5
\end{aligned}
\] \& \[
\begin{aligned}
\& 100 \\
\& 100 \\
\& 100 \\
\& 100
\end{aligned}
\] \& \[
\begin{aligned}
\& 0.5 \\
\& 0.5 \\
\& 0.005 \\
\& 0.004
\end{aligned}
\] \& \[
\begin{aligned}
\& \text { B } \\
\& \text { B } \\
\& 8 \\
\& \text { B }
\end{aligned}
\] \& \[
\begin{aligned}
\& \hline B \\
\& B \\
\& B \\
\& B
\end{aligned}
\] \& \[
\begin{aligned}
\& 20 \\
\& 24 \\
\& 32 \\
\& 32
\end{aligned}
\] \& \[
\begin{aligned}
\& \text { DTP/E } \\
\& \text { D/TP/E } \\
\& \text { D/TP/E } \\
\& \text { DTTP/E }
\end{aligned}
\] \& \[
\begin{aligned}
\& 15 \\
\& 9 \\
\& 16 \\
\& 15
\end{aligned}
\] \& \[
\begin{aligned}
\& 699.95 \\
\& 699.95 \\
\& 699.95 \\
\& 399.95
\end{aligned}
\] \& Tube output: Soft EQ. As above. Soft EQ. \\
\hline CEC \& TL 1(RI) \& 1 \& \& \& \& D/F \& \& \& \& 8 \& 8 \& \& \& \& 4695.00 \& Belt-driven CD transport. \\
\hline CELLD MUSIC AND FILM SYSTEMS \& \begin{tabular}{l}
Series 8 DAC \\
Series 8 ADC
\end{tabular} \& \& \begin{tabular}{l}
20-8X \\
18-64X
\end{tabular} \& A \& VB \& D/F \& \[
20-20 \pm 0.025
\]
\[
20-20 \pm 0.025
\] \& \[
\dagger
\]
\[
95.5
\] \& \(\dagger\) \& \& \& \& \& 27/3
27/8 \& \[
5000.00
\]
\[
5000.00
\] \& D/A converter, extemal power supply required; optional P.S. supply, \(\$ 1,000\), can also feed model below simultaneously. t108.5 dB. \(\mathrm{H}-94 \mathrm{~dB}\). AD converter; extemal power supply required (see above). \(\dagger-94 \mathrm{~dB}\). \\
\hline CONRADJOHNSON \& \begin{tabular}{l}
D/A1 \\
Premier Nine
\end{tabular} \& \& \[
\begin{aligned}
\& 1-256 X \\
\& 1-256 X
\end{aligned}
\] \& \[
\begin{aligned}
\& \mathbf{A} \\
\& \mathbf{A}
\end{aligned}
\] \& \[
\begin{aligned}
\& F \\
\& F
\end{aligned}
\] \& \[
\begin{aligned}
\& \mathbf{D} \\
\& \mathbf{D}
\end{aligned}
\] \& \[
\begin{aligned}
\& 20-20 \pm 0.5 \\
\& 20-20 \pm 0.5
\end{aligned}
\] \& \& \[
\begin{aligned}
\& 0.1 \\
\& 0.1
\end{aligned}
\] \& \& \& \& \& \[
\begin{aligned}
\& 14 \\
\& 30 \\
\& \hline
\end{aligned}
\] \& \[
\begin{aligned}
\& 1695.00 \\
\& 3495.00
\end{aligned}
\] \& \(\mathrm{D} / \mathrm{A}\) converter.
As above; tube. \\
\hline CDUNTERPOINT \& \begin{tabular}{l}
DA10 \\
DA10ST \\
DA11(RI)
\end{tabular} \& 1 \& \begin{tabular}{l}
Var. \\
Var.
\end{tabular} \& \begin{tabular}{l}
A \\
A
\end{tabular} \& \[
\begin{aligned}
\& F \\
\& F \\
\& F / B
\end{aligned}
\] \& \[
\begin{aligned}
\& \mathrm{D} / \mathrm{F} \\
\& \mathrm{D} / \mathrm{F} \\
\& \mathrm{D} / \mathrm{F}
\end{aligned}
\] \& \begin{tabular}{l}
Var. \\
Var.
\end{tabular} \& Var.
Var. \& \begin{tabular}{l}
Var. \\
Var.
\end{tabular} \& \& \& \& DT \& \[
\begin{aligned}
\& 14 \\
\& 14 \\
\& 14
\end{aligned}
\] \& \begin{tabular}{l}
1495.00 \\
1695.00 \\
1295.00
\end{tabular} \& D/A converter; interchangeable converter boards. As above; AT\&T digital input. CD transport. \\
\hline CREEK \& \begin{tabular}{l}
CD60(RI) \\
DAC60
\end{tabular} \& 1 \& \[
\begin{aligned}
\& 16-4 X \\
\& 20-8 x
\end{aligned}
\] \& \begin{tabular}{l}
A \\
A
\end{tabular} \& \[
F
\]
\[
F
\] \& D \& 20-20 \(\pm 0.1\) \& 110 \& \[
\begin{aligned}
\& 0.007 \\
\& .0005
\end{aligned}
\] \& \(\boldsymbol{T}\) \& 8 \& \& DTPE \& \[
\begin{aligned}
\& 16 \\
\& 14
\end{aligned}
\] \& 1295.00 999.00 \& Display on/off, twin power supplies. D/A converter. \\
\hline CURCID AUDID ENGINEERING \& M-C012V \& \& 16-4X \& C \& F \& \& \(20-20 \pm 0.03\) \& 98 \& 0.003 \& \& \& \& \& 7 \& 2500.00 \& Tube D/A converter,
kit, ASM-CD12V,
\(\$ 1200.00\). \\
\hline DENDN

(Continued) \& DP-S1(RI)
DA-S1
DCD-3500RG(RI)
DCD-2700
DCD-1290(RI)
DCD-695(RI)

DCD-595(RI) \& | $1$ |
| :--- |
| 1 $\begin{aligned} & 1 \\ & 1 \\ & 1 \\ & 1 \end{aligned}$ | \& \[

$$
\begin{aligned}
& 20-8 X \\
& 20-8 X \\
& 20-8 X \\
& 20-8 X \\
& 18-8 X \\
& 18-8 X
\end{aligned}
$$

\] \& | A |
| :--- |
| A |
| A A A A | \& \[

$$
\begin{aligned}
& F B \\
& \\
& F N / \\
& B N \\
& F N \\
& F N \\
& V \\
& V
\end{aligned}
$$

\] \&  \& \[

$$
\begin{aligned}
& 2-20 \pm 0.2 \\
& 2-20 \pm 0.2 \\
& 2-80 \pm 0.2 \\
& 2-20 \pm 0.2 \\
& 2-20 \pm 0.2 \\
& 2-20 \pm 0.2
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 120 \\
& 120 \\
& 117 \\
& 110 \\
& 107 \\
& 106
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& .0018 \\
& .0015 \\
& .0018 \\
& .0025 \\
& 0.003 \\
& 0.003
\end{aligned}
$$

\] \& | $\mathbf{T}$ |
| :--- |
| B |
| B |
| B |
| B B | \& \[

$$
\begin{aligned}
& \text { B } \\
& \\
& \text { B } \\
& \text { B } \\
& \text { B } \\
& \text { B }
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 20 \\
& 20 \\
& 20 \\
& 20 \\
& 20
\end{aligned}
$$

\] \& | DT/P/E |
| :--- |
| D/TE D/TE D/T/PRE D/T/RIE | \& 37

44 \& \[
$$
\begin{array}{r}
8000.00 \\
\\
7000.00 \\
\\
2000.00 \\
1200.00 \\
550.00 \\
300.00 \\
250.00
\end{array}
$$

\] \& | CD transport: AT\&T digital input; five digital outputs, including AT\&T and AES/EBU. |
| :--- |
| D/A converter; eight DACs; five digital inputs. |
| Four D/A converters. |
| As above. |
| Dual D/A converters. As above. As above. | <br>

\hline
\end{tabular}






\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline manufactur \&  \&  \&  \&  \&  \&  \&  \&  \&  \&  \&  \&  \&  \&  \&  \&  \\
\hline melos audio \& \begin{tabular}{l}
CD-T \(\operatorname{BIT}(\mathrm{R})\) \\
MAX-1 \\
MAX-2
\end{tabular} \& 1 \& \[
\begin{aligned}
\& 1-256 \mathrm{X} \\
\& 1-256 \mathrm{X} \\
\& 1.256 \mathrm{X}
\end{aligned}
\] \& \[
\begin{aligned}
\& A \\
\& A \\
\& A
\end{aligned}
\] \& \[
\begin{aligned}
\& \mathrm{F} \\
\& \mathrm{~F} N \\
\& \mathrm{~B} \\
\& \mathrm{~F} \boldsymbol{N}
\end{aligned}
\] \& F \& \[
\begin{aligned}
20-20 \& \pm 0.3 \\
20-20 \& \pm 0.3 \\
20-20 \& \pm 0.3
\end{aligned}
\] \& \[
\begin{aligned}
\& 85 \\
\& 85 \\
\& 85
\end{aligned}
\] \& \[
\begin{aligned}
\& 0.09 \\
\& 0.09 \\
\& 0.09
\end{aligned}
\] \& B \& T \& 20 \& D/T \& \[
\begin{aligned}
\& 30 \\
\& 35 \\
\& 17
\end{aligned}
\] \& \[
\begin{aligned}
\& 1795.00 \\
\& 2795.00 \\
\& 1995.00
\end{aligned}
\] \& Two chassis; tube analog stage. D/A converter, as above. D/A converter; tube analog stage. \\
\hline MERIDIAN \& \(206(\mathrm{RI})\)
\(208 \mathrm{RI})\)
\(506(\mathrm{RO})\)
\(508(\mathrm{RO})\)
\(200(\mathrm{RI})\)
\(500(\mathrm{RO})\)
\(602(\mathrm{RI})\)
263
563

606 \& $$
\begin{aligned}
& 1 \\
& 1 \\
& 1 \\
& 1 \\
& \\
& 1 \\
& 1 \\
& 1
\end{aligned}
$$ \& \[

$$
\begin{aligned}
& 1-64 X \\
& 1-256 x \\
& 1-64 X \\
& 1-64 X \\
& \\
& 1-64 X \\
& 1-64 X \\
& 1-256 x
\end{aligned}
$$

\] \& | A $\mathbf{A}$ $\mathbf{A}$ $\mathbf{A}$ |
| :--- |
| B B B C C |
| C | \& | FN F F/B |
| :--- |
| F |
| F/B |
| F | \& $D / F$

$H L / D / F$
$D / F$
$D / F$
$D / F$
$D / F$

$D / F$ \& \[
$$
\begin{aligned}
& 20-20 \pm 0.01 \\
& 20-20 \pm 0.01 \\
& 20-20 \pm 0.01 \\
& 20-20 \pm 0.01 \\
& \\
& \\
& 20-20 \pm 0.1 \\
& 20-20 \pm 0.1 \\
& 20-20 \pm 0.1
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 103 \\
& 104 \\
& 103 \\
& 106 \\
& \\
& \\
& 102 \\
& 104 \\
& \\
& 104
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \hline 0.004 \\
& 0.004 \\
& 0.004 \\
& 0.002 \\
& \\
& \\
& \\
& 0.004 \\
& 0.002 \\
& \\
& 0.003
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \hline 8 \\
& 8 \\
& 8 \\
& B \\
& \\
& 8 \\
& B \\
& B
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \hline 8 \\
& 8 \\
& B \\
& B \\
& \\
& \hline 8 \\
& 8 \\
& 8
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 32 \\
& 32 \\
& 32 \\
& 32 \\
& \\
& 32 \\
& 35 \\
& 32
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \hline D / / E \\
& D / / E \\
& D / / E \\
& D / / E \\
& \\
& D / / E \\
& D / / E \\
& D / / K
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \hline 19 \\
& 21 \\
& 19 \\
& 21 \\
& \\
& 19 \\
& 19 \\
& 19 \\
& 10 \\
& 14
\end{aligned}
$$
\] \& 1990.00

2950.00
1495.00
2350.00

1495.00
1650.00
2750.00
895.00

1350.00 \& | Delta-sigma decoding. |
| :--- |
| CD player/preamp. |
| Delta-sigma decoding. |
| Dual differential D/A |
| converters with delta- |
| sigma decoding. |
| CD transport. |
| As above. |
| As above; data |
| reclocking. |
| D/A converter. |
| Dual-diflerential D/A |
| converter; one AES |
| EBU, one optical, and three coaxial inputs. |
| Two coaxial and two |
| optical digital inputs. | <br>

\hline META RESEARCH \& Laser l(RI) Convert l(RO) \& 1 \& \& \& F \& $$
\bar{F}
$$ \& \& \& \& T \& \& \& D/T/E \& \[

$$
\begin{aligned}
& \hline 16 \\
& 13
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 4500.00 \\
& 3200.00
\end{aligned}
$$
\] \& CD transport. D/A converter; variable line outputs optional; expandable. <br>

\hline METAXAS

AUDIO SYSTEMS \& \begin{tabular}{l}
PHOS Basic(RI) <br>
PHOS <br>
Reference(RI) <br>
MAS DAC <br>
MAS DAC <br>
Reference

 \& 

$$
1
$$ <br>

1

\end{tabular} \& ${ }_{\text {20, }}^{20-8 X}$ \& C \& F \& D \& \[

$$
\begin{aligned}
& 5-150 \\
& 5-150 \\
& 5-150 \\
& 5-150
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 118 \\
& 120
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 0.005 \\
& 0.005
\end{aligned}
$$

\] \& \& \& \& \& \[

$$
\begin{aligned}
& 20 \\
& 100 \\
& 20 \\
& 40
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 2700.00 \\
& \\
& 10,000 . \\
& 3800.00 \\
& 8000.00
\end{aligned}
$$

\] \& | CD transport; transformer or direct digital output. As above. |
| :--- |
| D/A converter. As above. | <br>


\hline MICROMEEA \& | Logic(RI) Leader(RI) |
| :--- |
| Solo Pro(RI) |
| Microdac |
| Variodac(RI) |
| Duo BSII |
| Duo Pro |
| Trio BSII/PSU |
| Trio CD2(RI) |
| Duo CD2(RI) |
| Microdrive(RI) |
| Duo CD3(RI) | \& | $\begin{aligned} & 1 \\ & 1 \\ & 1 \end{aligned}$ |
| :--- |
| 1 |
| 1 |
| 1 |
| 1 | \& $1-256 \mathrm{X}$

$1-25 \mathrm{X}$
$1-256 \mathrm{X}$
$1-256 \mathrm{X}$
$1-256 \mathrm{X}$
$1-256 \mathrm{X}$

$1-256 \mathrm{X}$

$1-256 \mathrm{X}$ \& \& | F F F F $V$ |
| :--- |
| F |
| F/B |
| F/B | \&  \& \[

$$
\begin{aligned}
20-20 & \pm 0.5 \\
200-20 & \pm 0.5 \\
20-20 & \pm 0.5 \\
200-20 & \pm 0.2 \\
20-20 & \pm 0.2 \\
& \\
20-20 & \pm 0.2 \\
& \\
20-20 & \pm 0.2 \\
20-20 & \pm 0.2
\end{aligned}
$$

\] \&  \& \[

$$
\begin{aligned}
& .0025 \\
& .0025 \\
& .0025
\end{aligned}
$$

\] \&  \& | B B B |
| :--- |
| B |
| B |
| $B$ |
| 8 | \& \& | DTKE |
| :--- |
| DTHE |
| DTHE |
| D/T/P/E | \& | 10 12 24 3 4 |
| :--- |
| 4 |
| 15 |
| 30 |
| 18 |
| 18 |
| 8 |
| 15 | \& \[

$$
\begin{array}{r}
\hline 850.00 \\
1200000 \\
2800.00 \\
500.00 \\
1000.00 \\
\\
975.00 \\
\\
2000.00 \\
5000.00 \\
\hline 3000.00 \\
\hline
\end{array}
$$

\] \& | Top-loading. |
| :--- |
| D/A converter. |
| D/A converter and linelevel preamp (see also "Preamps"). |
| D/A converter; coaxial digital input and choice of fiber-optic or AES/EBU. |
| D/A converter, four digital inputs. |
| D/A converter, extemal power supply; |
| unbalanced, \$4500.00. |
| CD transport; requires |
| power supply from |
| model above or |
| optional AL 2, |
| \$975.00; optional AES |
| EBU output. |
| Top-loading CD |
| transport; optional |
| AES/EBU output. |
| Top-loading CD |
| transport. |
| As above; AES/EBU |
| output. | <br>

\hline MISSION \& DAD 5(R1) DAC 5 \& 1 \& $$
\begin{aligned}
& 1-256 \mathrm{X} \\
& 1-256 \mathrm{X}
\end{aligned}
$$ \& A \& F \& D \& \[

$$
\begin{aligned}
20-20 & \pm 0.05 \\
20-20 & \pm 0.03
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 98 \\
& 112
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 0.005 \\
& 0.001
\end{aligned}
$$

\] \& T \& \& 20 \& D/T \& \& \[

$$
\begin{aligned}
& 699.00 \\
& 699.00
\end{aligned}
$$

\] \& | Sacond-order noise shaping. |
| :--- |
| D/A converter, thirdorder noise shaping; polarity inversion. | <br>

\hline MOMARCHY

AUDIO \& $$
\begin{aligned}
& \text { 22A } \\
& \mathrm{DT}-30(\mathrm{RI}) \\
& \mathrm{DT}-40 \mathrm{~A}(\mathrm{RI}) \\
& \hline
\end{aligned}
$$ \& 5 \& \[

$$
\begin{aligned}
& 20-8 x \\
& 1-64 x \\
& 16-4 x
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \hline \mathbf{A} \\
& \mathbf{A} \\
& \hline
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \hline F / B \\
& F \\
& F
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \text { HLD/F } \\
& \text { HLJD }
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
20-20 & \pm 0.1 \\
20-20 & \pm 0.1 \\
20-20 & \pm 0.1
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 105 \\
& 105 \\
& 100
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 0.002 \\
& 0.003 \\
& 0.003
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 8 \\
& 8 \\
& \hline
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \mathbf{B} \\
& \mathbf{B} \\
& \hline
\end{aligned}
$$

\] \& \[

$$
\begin{array}{r}
24 \\
24
\end{array}
$$

\] \& | DT/PFE |
| :--- |
| DT/PE | \& \[

$$
\begin{aligned}
& 15 \\
& 50 \\
& 50
\end{aligned}
$$

\] \& \[

$$
\begin{array}{r}
998.00 \\
1199.00 \\
1499.00
\end{array}
$$
\] \& Dual D/A converter. CD/videodisc player. As above. <br>

\hline MSB \& | MSB Silver Transpont(RI) |
| :--- |
| MSB Silver CD Player(RI) MSB Gold CD Player(RI) MSB Gold Processor | \& 1

1

1 \& $$
\begin{aligned}
& 16-4 X \\
& 16-4 X \\
& t
\end{aligned}
$$ \& $B$ \& \[

$$
\begin{aligned}
& F / B \\
& F \\
& F \\
& F / B
\end{aligned}
$$

\] \& $\dagger$ \& \[

$$
\begin{aligned}
& 5-20 \\
& 5-20 \\
& 5-20
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 105 \\
& 116 \\
& 116
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 0.015 \\
& 0.015 \\
& 0.012
\end{aligned}
$$

\] \& \[

$$
\begin{gathered}
\text { B } \\
\text { B }
\end{gathered}
$$

\] \& \[

$$
\begin{array}{|l|}
\hline 8 \\
\hline 8 \\
\hline
\end{array}
$$

\] \& \[

$$
\begin{aligned}
& 144 \\
& 144 \\
& 144
\end{aligned}
$$

\] \& | D/TP/E |
| :--- |
| D/T/P/E |
| D/T/PE | \& \[

$$
\begin{aligned}
& 52 \\
& 52 \\
& 52 \\
& 46
\end{aligned}
$$
\] \& 2795.00

2795.00
3995.00

3395.00 \& | CD transport; data reclocking. tAT\&T and AES/EBU outputs. |
| :--- |
| D/A converter; 6-V output. †Proprietary ladder DAC. | <br>

\hline $$
\begin{aligned}
& \text { MTX SOUND- } \\
& \text { CRAFTSMEN }
\end{aligned}
$$ \& CD100(RI) \& 1 \& 1-256x \& A \& F \& D \& 20-20 $\pm 0.005$ \& 100 \& . 0025 \& D \& \& 16 \& D/E \& 13 \& 599.95 \& Compander circuit. <br>

\hline MUSE \& Two \& \& 20-8X \& A \& F/B \& Nons \& 20-20 $\pm 0.2$ \& 100 \& 0.01 \& \& \& \& \& 21 \& 1700.00 \& D/A converter; optional AES/EBU input. <br>
\hline
\end{tabular}



## We also design disc player $t$

## "It yielded tight, well-controlled

## sound whose overall balance

 and imaging was beyond reproach."176.4 kHz


Adcom's compact disc players have always turned the heads of industry critics. Recen comments when reviewing the GCD-600 in High Performance Review. Stop by your the best heads in the business are saying about Adcom's components.

## ed our carousel <br> oturn heads.

"...the Adcom GCD-600 came about as close as we have heard from $C D$ players and separate player/converter combinations costing several times as much."
play
and over again."
"The piano concerto was impressively reproduced and the clarity and total accuracy prompted us to listen to it over

## CD PLAYERS \& D/A CONVERTERS

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PINK TRIANGLE | Dacapo <br> Ordinal |  | 1 $1$ | A <br> A | F | $\begin{aligned} & \mathrm{D} / \mathrm{F} \\ & \mathrm{D} / \mathrm{F} \end{aligned}$ | $2-21 \pm 0.1$ $2-21 \pm 0.1$ | 114 <br> 112 | $\begin{aligned} & 0.004 \\ & 0.005 \end{aligned}$ |  |  |  |  | 14 <br> 8 | $\begin{aligned} & 2595.00 \\ & 1395.00 \end{aligned}$ | D/A converter; 18- or 20-bit pluggable filters; variable line out optional. Dual b/A converter; filters as above. |
| PIONEER | PD-102 <br> PD-202(RI) <br> PD-M502 <br> PD-M552(RI) <br> PD-M702(RI) <br> PD-DM802(RI) <br> PD-DM992(RI) PD-TM3(RI) <br> CLD-S201(RO) <br> CLD-D502(RI) <br> CLD-D702(RI) <br> CLD-M301 (RI) <br> CLD-M401 (RI) <br> CLO-V740(RI) <br> CLO-V840(RI) | $\begin{aligned} & 1 \\ & 1 \\ & 6 \\ & 6 \\ & 6 \\ & t \\ & t \\ & t \\ & 1 \\ & 1 \\ & 1 \\ & 5 \\ & 5 \\ & 1 \\ & 1 \end{aligned}$ | $\begin{aligned} & \hline 1 \\ & 1 \\ & 1 \\ & 1 \\ & 1 \\ & 1 \\ & 1 \\ & 1 \\ & 1 \\ & 1 \\ & 1 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \end{aligned}$ | $\begin{aligned} & \hline \mathbf{F} \\ & \mathbf{F} \\ & \mathbf{F} \\ & \mathbf{F} \\ & \mathbf{F} \\ & \mathbf{F} \\ & \mathbf{F} \\ & \mathbf{F} \end{aligned}$ | HL/D/F <br> HLO/F <br> HL/D/F <br> HLD/F <br> D/F | $\begin{aligned} & 20-20 \\ & 20-20 \\ & 20-20 \\ & 20-20 \\ & 20-20 \\ & 20-20 \\ & 20-20 \\ & 20-20 \end{aligned}$ | $\begin{aligned} & 98 \\ & 102 \\ & 98 \\ & 98 \\ & 102 \\ & 102 \\ & 102 \\ & 102 \end{aligned}$ | $\begin{aligned} & 0.003 \\ & 0.003 \\ & 0.003 \\ & 0.003 \\ & 0.003 \\ & 0.003 \\ & 0.003 \\ & 0.003 \end{aligned}$ | $B$ $B$ $B$ $B$ $B$ $B$ $B$ $B$ | $\begin{aligned} & B \\ & B \\ & B \\ & B \\ & B \\ & B \\ & B \\ & B \end{aligned}$ | $\begin{aligned} & 24 \\ & 24 \\ & 24 \\ & 24 \end{aligned}$ | $\begin{aligned} & \mathrm{D} / \mathrm{E} \\ & \mathrm{D} / \mathrm{E} \\ & \mathrm{D} / \mathrm{T} / \mathrm{E} \\ & \mathrm{D} / \mathrm{T} / \mathrm{E} \\ & \mathrm{D} / / \mathrm{P} / \mathrm{E} \\ & \mathrm{D} / \mathrm{T} / \mathrm{P} / \mathrm{E} \\ & \mathrm{D} / T / \mathrm{P} / \mathrm{E} \\ & \mathrm{D} / / \mathrm{P} / \mathrm{E} \end{aligned}$ | 7.8 7.8 8.6 8.6 8 12 12 14 15.9 19.8 20.3 20.9 21.3 18.5 18.5 | 190.00 220.00 260.00 275.00 300.00 375.00 450.00 520.00 535.00 770.00 1200.00 650.00 770.00 900.00 1100.00 | tTwo six-disc magazines. <br> Five-mode DSP. <br> t†Three six-disc magazines. As above. CD/videodisc player. As above. As above. CD/videodisc changer. As above. CD/videodisc/karaoke player. As above. |
| PROCEED | ```PCO 3(R) POT 3(RI) PDP 3 CD Library(RI)``` | $\begin{aligned} & 1 \\ & 1 \\ & \dagger \end{aligned}$ | $\begin{aligned} & 20-8 X \\ & 20-8 x \\ & 18-8 x \end{aligned}$ | A $\mathrm{A}$ | $\begin{aligned} & \hline F / B \\ & \\ & F / B \\ & F / N / \\ & B \end{aligned}$ | $\begin{aligned} & \hline \mathbf{D} \\ & \mathrm{D} / \mathrm{F} \\ & \mathrm{D} \\ & \mathrm{D} \end{aligned}$ | $\begin{aligned} & 10-20+0,-0.2 \\ & 10-20+0,-0.2 \\ & 10-20+0,-0.2 \end{aligned}$ | $\begin{aligned} & 107 \\ & 107 \\ & 105 \end{aligned}$ | $\begin{aligned} & 0.004 \\ & 0.004 \\ & 0.004 \end{aligned}$ | $\begin{array}{\|l\|} \hline 0 \\ 0 \\ \\ B \end{array}$ | B | $\begin{aligned} & 20 \\ & 20 \\ & \dagger \end{aligned}$ | D/T/E <br> D/T/E <br> D/TE | $\begin{aligned} & \hline 31 \\ & 31 \\ & \\ & 21 \\ & 210 \end{aligned}$ | $\begin{aligned} & 2995.00 \\ & 2495.00 \\ & 2495.00 \end{aligned}$ | CD transport; four digltal output formats. D/A converter. +100 dises and 2970 selections, 15 programmable categories. CD transport version, \$8995.00. |
| PS AUDIO | PS Reference Link LS(RI) <br> PS UltraLink <br> PS AudioLink <br> PS Lambda(RI) | 1 | 20-8X <br> 20-8x <br> 20-8X | A <br> A <br> A | V/B <br> F/B <br> F | D <br> D <br> D | $\begin{aligned} & 20-20 \pm 0.3 \\ & 20-20 \pm 0.5 \\ & 20-20 \pm 0.5 \end{aligned}$ | $\begin{aligned} & 110 \\ & 110 \\ & 110 \end{aligned}$ | $\begin{aligned} & 0.01 \\ & 0.01 \\ & 0.01 \end{aligned}$ | $T$ | B |  | D | 28 <br> 15 <br> 14 <br> 24 | 4795. 예 $\begin{array}{r} 2295.00 \\ 595.00 \\ 1695.00 \end{array}$ | D/A and AD converter, digital volume and balance; Iline-level preamp. D/A comverter, Af\& input. <br> D/A converter. <br> CD transport; optional AES/EBU and AT\&T outputs. |
| QUAD | 67CD(RI) | 1 | 18-64X | A | F | D | 4-21 $\pm 0.1$ | 112 | 0.002 | 0 | T | 50 | D/T/E | 81/2 | 1699.00 | Deita-sigma decoding. |
| QUASAR | $\begin{aligned} & \text { CD893(RI) } \\ & \text { CD853 } \\ & \text { C0832 } \end{aligned}$ | $\begin{aligned} & 5 \\ & 5 \\ & 1 \end{aligned}$ | $\begin{aligned} & 1-32 x \\ & 1-32 x \\ & 1-32 x \end{aligned}$ | $\begin{aligned} & \mathrm{C} \\ & \mathrm{C} \\ & \mathbf{C} \end{aligned}$ | $\begin{aligned} & \mathbf{F} \\ & \mathbf{F} \\ & \mathbf{F} \end{aligned}$ |  |  |  |  | $\begin{aligned} & \hline 8 \\ & B \\ & B \end{aligned}$ | $\begin{aligned} & 8 \\ & B \\ & B \end{aligned}$ | $\begin{aligned} & 32 \\ & 32 \\ & 20 \end{aligned}$ | D/T/E $0 / T / E$ D/T/E | $\begin{aligned} & 11 \\ & 10 \\ & 6^{55 /} \end{aligned}$ | $\begin{aligned} & 250.00 \\ & 230.00 \\ & 150.00 \end{aligned}$ |  |
| REALSTIC | 16-302(RI) | 1 | 16-4X | A | F | H | 20-20 $\pm 2$ | 90 | 0.03 | B | 8 | 20 | D/T/E |  | 299.95 | CO/videodisc player. |
| $\begin{aligned} & \hline \text { RESOLUTION } \\ & \text { AUDIO } \end{aligned}$ | Reference O.A.C. <br> Quantum <br> Processor |  | $\begin{aligned} & 20-8 X \\ & 20-8 X \end{aligned}$ | $\begin{aligned} & \hline \mathrm{A} \\ & \mathrm{~A} \end{aligned}$ | $\begin{aligned} & F / B \\ & F / B \end{aligned}$ |  | $\begin{aligned} & 20-20+0,-0.5 \\ & 20-20+0,-0.2 \end{aligned}$ | $\begin{aligned} & 108 \\ & 108 \end{aligned}$ |  |  |  |  |  | $\begin{aligned} & 11 \\ & 16 \end{aligned}$ | $\begin{aligned} & 1495.00 \\ & 2995.00 \end{aligned}$ | D/A converter; AT\&T input. As above. |
| ROKSAN | $\begin{aligned} & \hline \mathrm{DP}-1(\mathrm{RI}) \\ & \mathrm{DA}-1 \end{aligned}$ | 1 | 16-4X | B | F | $0 / \mathrm{F}$ | 20-20 $\pm 0.3$ | 105 | 0.005 | B | B |  | D | 16 | $\begin{aligned} & 2500.00 \\ & 1300.00 \end{aligned}$ | CD transport. D/A converter. |
| ROTEL | $\begin{aligned} & \text { RCD945AX(RI) } \\ & \text { RCD955AX (RI) } \\ & \text { RCD965BX (RI) } \\ & \text { RCC940AX(RI) } \\ & \hline \end{aligned}$ | $\begin{aligned} & 1 \\ & 1 \\ & 1 \\ & 5 \end{aligned}$ | $\begin{aligned} & 1-164 X \\ & 16-4 X \\ & 1-256 x \\ & 1-164 X \\ & \hline \end{aligned}$ | $\begin{aligned} & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \end{aligned}$ | $\begin{aligned} & F \\ & F \\ & F \\ & F \end{aligned}$ | $\begin{aligned} & \mathbf{F} \\ & \mathbf{D} \\ & \mathbf{D} \\ & \mathbf{F} \end{aligned}$ | $\begin{aligned} & 20-20 \pm 0.05 \\ & 20-20 \pm 0.05 \\ & 20-20 \pm 0.05 \\ & 20-20 \pm 0.05 \end{aligned}$ | $\begin{aligned} & 100 \\ & 100 \\ & 100 \\ & 100 \end{aligned}$ | $\begin{aligned} & .0025 \\ & .0025 \\ & .0025 \\ & .0025 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline \mathrm{T} \\ & \mathrm{~T} \\ & \mathrm{~T} \\ & \mathrm{~B} \\ & \hline \end{aligned}$ | B | $\begin{aligned} & 20 \\ & 20 \\ & 20 \\ & 32 \end{aligned}$ | D/T/E D/TE D/T/E 0/T/E | $\begin{aligned} & 12 \\ & 123 / 4 \\ & 123 / 4 \\ & 14 \end{aligned}$ | $\begin{aligned} & 350.00 \\ & 450.00 \\ & 550.00 \\ & 500.00 \end{aligned}$ |  |
| SANSUI | Vintage <br> CO-X617(RI) <br> CD-X317(RI) <br> CD-390M (RI) <br> CD-117K(RO) <br> CD-270(RO) | $\begin{aligned} & 1 \\ & 1 \\ & 5 \\ & 1 \\ & 1 \end{aligned}$ | $\begin{aligned} & \text { MASH } \\ & \text { MASH } \\ & 16-8 X \end{aligned}$ | $\begin{aligned} & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \end{aligned}$ | FN <br> FN <br> F <br> $F$ <br> $F$ <br> $F$ | HL/F HLF | $\begin{aligned} & 4-20 \pm 0.5 \\ & 4-20 \pm 0.5 \\ & 5-20 \pm 1 \\ & 40-20 \pm 1 \\ & 40-20 \pm 1 \end{aligned}$ | $\begin{aligned} & 110 \\ & \\ & 100 \\ & 95 \\ & 100 \\ & 100 \end{aligned}$ | 0.002 0.003 0.03 0.08 0.08 | $\begin{aligned} & B \\ & B \\ & B \\ & B \\ & B \end{aligned}$ | $\begin{aligned} & \hline B \\ & B \\ & B \\ & B \\ & B \end{aligned}$ | $\begin{aligned} & 24 \\ & 24 \\ & 30 \\ & 25 \\ & 25 \\ & \hline \end{aligned}$ | 0/T/PRE <br> D/T/PE D/TE 0/T/P/E 0/T/PR | $\begin{aligned} & 9 \\ & 9 \\ & 12 \\ & 6.6 \\ & 6.6 \end{aligned}$ | $\begin{aligned} & 500.00 \\ & 330.00 \\ & 260.00 \\ & 235.00 \\ & 200.00 \end{aligned}$ | Dual D/A converters; three-mode time edit. Three-mode time edit. <br> Two-mode time edit. As above. |
| SENTEC | DiAna |  | 20-8X | A | $\bar{F}$ |  | $\begin{aligned} & 0.1-20 \\ & +0 .-0.1 \end{aligned}$ | 110 | 0.002 |  |  |  |  | 3 | 1150.00 | D/A converter, Class-A analog stage. |
| SHERWOOD | $\begin{aligned} & \operatorname{CDC-5030R(RI)} \\ & \operatorname{CD}-3030 R(R I) \end{aligned}$ | $\begin{aligned} & 5 \\ & 1 \end{aligned}$ | $\begin{aligned} & 1-8 \mathrm{x} \\ & 1-8 \mathrm{x} \end{aligned}$ |  | F <br> F | HL. <br> HL | $20-20 \pm 0.5$ $20-20 \pm 0.5$ | $\begin{aligned} & 104 \\ & 103 \end{aligned}$ | $\begin{aligned} & 0.005 \\ & 0.005 \end{aligned}$ | $\begin{aligned} & B \\ & B \end{aligned}$ | $\begin{aligned} & \hline \text { B } \\ & \text { B } \end{aligned}$ | 32 20 | DTRPE <br> DT/PRE | $\begin{aligned} & 16 \\ & 11 \end{aligned}$ | $\begin{aligned} & 275.00 \\ & 195.00 \end{aligned}$ | Reloadable during play; tape edit function. Tape/lime edit tunction. |
| SIWPLYPHYSICS | Bltmaker RR-54E(RI) Lasemaster RR-L52E(RI) | $\begin{aligned} & 1 \\ & 1 \end{aligned}$ | $\begin{aligned} & 1-356 x \\ & 1-356 x \end{aligned}$ |  | $\begin{aligned} & F \\ & F \end{aligned}$ | $\begin{aligned} & \mathrm{D} \\ & \mathrm{D} \end{aligned}$ |  |  |  |  |  |  |  | $\begin{aligned} & 12 \\ & 20 \end{aligned}$ | $\begin{aligned} & 1250.00 \\ & 1995.00 \end{aligned}$ | CDNideodisc player; two-side LO play. |
| SONIC FRONTIERS | $\begin{aligned} & \hline \text { SFD-1 } \\ & \text { SFD-2 } \end{aligned}$ |  | $\begin{aligned} & 20-8 X \\ & 20-8 X \end{aligned}$ | A <br> A | $\begin{aligned} & \hline \text { F/B } \\ & \text { F/B } \\ & \hline \end{aligned}$ | D | $\begin{aligned} & 5-20 \pm 0.5 \\ & 5-20 \pm 0.5 \end{aligned}$ | $\begin{aligned} & \hline 110 \\ & 110 \end{aligned}$ | $\begin{aligned} & 0.1 \\ & 0.1 \end{aligned}$ |  |  |  |  | $\begin{aligned} & 20 \\ & 28 \end{aligned}$ | $\begin{aligned} & 1995.00 \\ & 4695.00 \end{aligned}$ | D/A converter, tube analog stage. As above. |
| SOMOGRAPHE | SD22(R1) | 1 | 1-256X | A | F |  | 20-20 $\pm 0.5$ | 96 | 0.1 | T | D | 20 | D/T/PiE | 12 | 895.00 |  |

## Ears Will Talk

Certainly you've read the reviews.
Perhaps you've experienced it with your own ears.
That is, actually hearing a Theta processor liberate the heretofore unheard minute nuances of sound captured within a compact disc.

Detail. Dynamics. Clarity. Subtlety.
But what about the cost?
Introducing the Theta DS Pro Prime II, the affordable Theta digital-toanalog converter.

A look inside reveals an all-new design of wireless circuitry-minimizing interference and reflection, and significantly improving performance while reducing costs of production.

Like units costing many thousands more, the Prime II gives you the advantage of balanced digital even if you have a single-ended preamp.

And the Prime II comes equipped with dual differential DACs for greater resolution, and the same DSP computer that's helped make Thetas Gen III and



## COUNTERPOINT DIGITAL

## The DA-10 D to A

In Japan, the DA-10 was named Component of the Year. Then, the DA-10 was chosen for Design and Engineering Honors by the Consumer Electronics Shows. And the latest award for this piece is "BEST BUY" from International Audio Review.

## In a few

years, everyone will be offering these features.

## The DA-11 Transport

At long last, a Counterpoint CD transport! Introducing many special features, including the fact that it is of audio purist quality, yet has a user-friendly front-loading mechanism.

The DA-10 is a six-input digital to analog converter. Besides two digital tape loops with full dubbing, a digital phase inverter, muting, and a lamp to indicate good input signal, the DA-10 comes equipped with a front panel adjustable Most Significant Bit (MSB) adjustment. Using a totally discrete analog stageas well a totally discrete current to voltage stage-the DA10's analog stage is DC-coupled and servo-corrected to prevent DC offset. It uses a passive third-order Bessel antialiasing filter for minimum ringing and best group delay.

The One and Only...
The DA-10 is unique in that it comes with your choice of DAC cards. This means that you choose the sound best for your system and budget, much the same way as phono cartridges are interchangeable. Currently available cards utilize Analog Devices, Burr Brown, Crystal Semi, Philips and UltraAnalog DAC's. And as newer and better DAC's are developed, Counterpoint will make them available .
 integrated circuit has its own regulated power supply-an absolute requirement for high-purity digital data. But we've not forgotten the Real World: each DA-11 offers SC ("TosLink") plastic optical, two BNC electrical out-puts-one floated and one directandan AES/EBU balanced output and an optional ST glass optical.

## Counterpoint. The Audio Technology Company.

2281 Las Palmas Drive, Carlsbad, Ca. 92009. Toll Free Canada \& U.S. (800) 275-2743 Fax (619) 431.5986


## Hyper Batanced

## Hyper-Balanced Re-Defincs State-of-the-Art

Hyper-(hi pir) if \&Gr hyper If peefix over, above, beyond, syirpassing
Balance(dy ghal ons) II <LL silanx|II
I- Ecneral haimony between the parts of anything, spinging from the observacce of justi proportion and relauionship; esp. in the Arts of Design
2 statility 0 - steadiness dice to thic equi1 brium prevailing between alt the freces of eny system


Hyper-Balanced (hi por-bal'znsd) I < AmBne II

1 an adyanced interconnect cable resiga featuring mihimal energy storage within the music signal path allowing the music to. come through pure and cacean, unaffected by cable-induced distortions
2. quite simply, the if est audro interconiects available

No other interconnects come close to our Primus and Artus dypart Balanced cables. Expericnce a vastly increased sense of realism from your systẹm. Visit one of our select aludio dea ers to personally audizion these supcrior interconnects in your own system, with our sno risk home audition prostam".

## Call Esoteric Aidio USA today for the name of your nearest dealer. and receive a free brochure detailing the technology behind the remarkable Hyper-Balanced cables,

| MANUFACTURE |  |  |  |  |  |  | $7$ |  |  |  |  | $7$ |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AB <br> INTERNATIONAL ELECTRONICS | 1550 | B | 0.1 | Yes | 60 | 1.5 V | Na | 330 | 540 | 20-20 | AB | 1.5 | 15 |  |  |  |  | 33 | 1179.00 | Bridgeable; with LED power meters and solt clip, Model 1590, $\$ 1339.00$. |
| ACCUPHASE | $\begin{aligned} & \text { A-50 } \\ & E \cdot 406 \\ & \hline \end{aligned}$ | B | $\begin{aligned} & 0.02 \\ & 0.02 \\ & \hline \end{aligned}$ | Yes Yes |  | $\begin{aligned} & 110 \\ & 147 \\ & \hline \end{aligned}$ |  | $\begin{array}{\|l\|} \hline 50 \\ 170 \\ \hline \end{array}$ | $\begin{aligned} & 100 \\ & 250 \end{aligned}$ | $\begin{aligned} & 20 \cdot 20 \\ & 20.20 \\ & \hline \end{aligned}$ | A |  | $\dagger$ | 90 | 4.65 |  | Yes | $\begin{aligned} & 117 \\ & 73 \\ & \hline \end{aligned}$ | $\begin{array}{r} 14,995 . \\ 6495.00 \end{array}$ | $\dagger$ Unbalanced, 20 kilohms; balanced, 40 kilohms. Bridgeable. |
| ACURUS | A250 A150 DIA-100 $200 \times 3$ $100 \times 3$ | $\begin{array}{\|l\|} \hline B \\ B \\ \text { B } \\ B \\ B \\ \hline \end{array}$ | $\begin{aligned} & 0.06 \\ & 0.06 \\ & 0.09 \\ & 0.06 \\ & 0.06 \end{aligned}$ | No No No No No |  | 1.2 1.2 200 1.2 1.2 | No No No No No | 250 150 100 $t$ $t$ | $\begin{aligned} & 350 \\ & 200 \\ & 150 \\ & t \dagger \\ & t \dagger \end{aligned}$ | $20-20$ $20-20$ $20-20$ $20-20$ $20-20$ | $A B$ $A B$ $A B$ $A B$ $A B$ |  | $\begin{aligned} & 22 \\ & 22 \\ & 10 \\ & 22 \\ & 22 \end{aligned}$ |  |  |  |  | $\begin{aligned} & 35 \\ & 30 \\ & 35 \end{aligned}$ | $\begin{array}{r} 995.00 \\ 699.00 \\ 995.00 \\ 1295.00 \\ 795.00 \end{array}$ | $\dagger$ Integrated amp with passive contral section. $\dagger 200$ watts $\times 3$. $\dagger \dagger 250$ watts $\times 3$. <br> $\dagger 100$ watts $\times 3$. <br> $\dagger \dagger 125$ watts $\times 3$. |
| ADCOM | GFA-5800 GFA-555II GFA-545II GFA-535II GFA-535L GFA-2535 | B <br> $B$ <br> $B$ <br> $B$ <br> $B$ <br> $B$ <br> $B$ | $\begin{aligned} & 0.04 \\ & 0.04 \\ & 0.04 \\ & 0.09 \\ & 0.06 \end{aligned}$ | Yes No No No No No |  | 130 130 130 130 130 | No No No No No No | 250 200 100 60 60 $t$ | $\begin{aligned} & 500 \\ & 325 \\ & 150 \\ & 100 \\ & 100 \\ & \dagger \dagger \end{aligned}$ | $\begin{aligned} & 20-20 \\ & 20-20 \\ & 20-20 \\ & 20-20 \\ & 20-20 \\ & 20-20 \end{aligned}$ | $A / A B$ $A B$ $A B$ $A B$ $A B$ $A B$ | 2.5 2.1 3.0 3.0 1.5 | $\begin{aligned} & 100 \\ & 100 \\ & 100 \\ & 22 \\ & 22 \end{aligned}$ |  |  |  |  | 35 <br> 24 <br> 191/2 <br> 22 <br> 35 | 1500.00 850.00 550.00 350.00 370.00 600.00 | Bridges to 600 watts into 8 ahms. <br> Front-panel level controls. <br> $\dagger 60$ watts $\times 4 . \dagger \dagger 90$ watts $\times 4$. Threechannel operation, 60 watts $\times 2$ and 200 watts $\times 1$ into 8 ohms. |
| AD/S/ | $\begin{array}{\|l\|} \hline \text { PH6 } \\ \hline \mathrm{PH} 4 \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline B \\ \hline \end{array}$ | $\begin{aligned} & 0.02 \\ & 0.02 \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline \text { No } \\ \text { No } \\ \hline \end{array}$ | 40 | 915 | No | 70 | $\begin{array}{r} 125 \\ 50 \\ \hline \end{array}$ | 10-80 | $\begin{aligned} & A B \\ & A B \end{aligned}$ | 3 | 10 |  |  |  |  |  | $\begin{aligned} & 2199.00 \\ & 1290.00 \end{aligned}$ | Six-channel operation; bridges to three, four, or five channels. As above. |
| AIR TIGHT | $\begin{array}{\|l\|l\|} \hline \text { ATM-1 } \\ \text { ATM-2 } \\ \text { ATM-3 } \end{array}$ | $\begin{aligned} & \mathrm{B} / \mathrm{T} \\ & \mathrm{~B} / \mathrm{T} \\ & \mathrm{~B} / \mathrm{T} / \mathrm{M} \end{aligned}$ | $\begin{aligned} & 0.1 \\ & 0.07 \end{aligned}$ | $\begin{array}{\|l\|} \hline \text { No } \\ \text { No } \end{array}$ |  |  |  | $\begin{array}{\|l\|} \hline 36 \\ 80 \\ 120 \\ \hline \end{array}$ |  | $\begin{aligned} & 20-20 \\ & 20-20 \end{aligned}$ |  |  | $\begin{aligned} & 100 \\ & 100 \end{aligned}$ |  |  |  |  | $\begin{aligned} & 48^{1 / 2} \\ & 70^{1 / 2} \end{aligned}$ | $\begin{array}{r} 3995.00 \\ 6995.00 \\ 10,500 . \\ \text { Pair } \end{array}$ | Bridgeable. As above. Switchable to 40-watt triode operation. |
| AMC | CVT3030 CVT2100 CVT2030 2445 | $\begin{aligned} & \mathrm{I} / \mathrm{H} \\ & \mathrm{~B} / \mathrm{H} \\ & \mathrm{~B} / \mathrm{H} \\ & \mathrm{~B} \end{aligned}$ | $\begin{aligned} & 1 \\ & 3 \\ & 1 \\ & 0.04 \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { Opt. } \\ & \text { Opt. } \\ & \text { No } \end{aligned}$ |  | $\begin{aligned} & 180 \\ & 1 \mathrm{~V} \\ & 1.2 \mathrm{~V} \\ & \text { Var. } \end{aligned}$ | No No No No | $\begin{aligned} & 30 \\ & 80 \\ & 30 \\ & 30 \end{aligned}$ | $\begin{aligned} & 30 \\ & 80 \\ & 80 \\ & 30 \\ & 45 \end{aligned}$ | $\begin{aligned} & 45-20 \\ & 35-20 \\ & 45-20 \\ & 20-20 \end{aligned}$ | $\begin{aligned} & A \\ & A \\ & A \\ & A B \end{aligned}$ | 2 | $\begin{aligned} & 20 \\ & 1 M \\ & 1 M \\ & 20 \end{aligned}$ | 79 | 2.9 | 150 | No |  | $\begin{aligned} & 899.95 \\ & 999.95 \\ & 399.95 \end{aligned}$ | Optional D/A converter module (see also "D/A Converters"). Optional bridging module. As above. Two-, three-, or fourchannel operation. |
| AMERICAN HYBRID TECHNOLDGY | AHT/300 | $\begin{aligned} & \mathrm{B} / \mathrm{H} \\ & \mathrm{M} \end{aligned}$ |  | No |  |  | No | 300 | 300 | 10-100 | AB1 |  | 53 |  |  |  |  |  | 30,000. <br> Pair | Optional Class-A operation. |
| AMHERST AUDIO | A-2000 | B | 0.5 | No | 12 |  | Var. | 150 | 180 | 20-20 | AB | 2 | 22 |  |  |  |  | 35 | 995.00 | Toroidal transformer. |
| AR | Limited Amplifier 200 | B | 0.2 | Yes | 30 | 1.4 V | No | 200 | 350 | 20-20 | AB | 5 | Sel. |  |  |  |  | 50 | 3200.00 | Bridgeable. |
| ARAGON | Palladium <br> 2004 Mk II 4004 Mk II | $\begin{array}{\|l\|} \hline B / M \\ B \\ \hline \end{array}$ | $\begin{aligned} & 0.06 \\ & 0.06 \\ & 0.06 \\ & \hline \end{aligned}$ | Yes <br> No <br> No |  |  | No No No | $\begin{array}{\|l\|} \hline 100 \\ 100 \\ 200 \\ \hline \end{array}$ | $\begin{aligned} & 600 \\ & 200 \\ & 400 \end{aligned}$ | $\begin{aligned} & 20-20 \\ & 20-20 \\ & 20-20 \end{aligned}$ | $\begin{aligned} & A \\ & A / A B \\ & A A B \end{aligned}$ | $\begin{aligned} & 2.5 \\ & 2.5 \end{aligned}$ | Sel. <br> 22 <br> 22 |  |  |  |  | $\begin{aligned} & 65 \\ & 45 \\ & 65 \end{aligned}$ | 2000.00 Each 1395.00 1850.00 | Dual difterential signal path. |
| ARCAM | Alpha 5 <br> Alpha 6 <br> Delta 290 | $\begin{aligned} & 1 \\ & 1 \\ & 1 \\ & 1 \\ & 1 \end{aligned}$ | $\begin{aligned} & 0.5 \\ & 0.5 \\ & 0.5 \\ & \hline \end{aligned}$ | $\begin{aligned} & \mathrm{No} \\ & \mathrm{No} \\ & \mathrm{No} \\ & \hline \end{aligned}$ |  | 135 <br> 150 <br> 175 | No No No No | $\begin{aligned} & 40 \\ & 50 \\ & 75 \\ & \hline \end{aligned}$ | $\begin{aligned} & 80 \\ & 100 \\ & 140 \\ & \hline \end{aligned}$ | $\begin{aligned} & 20-20 \\ & 20-20 \\ & 20-20 \end{aligned}$ | $\begin{aligned} & A B \\ & A B \\ & A B \end{aligned}$ |  | $\begin{aligned} & 20 \\ & 47 \\ & 10 \\ & \hline \end{aligned}$ |  | 2.6 |  | $\begin{array}{\|l\|} \hline \text { No } \\ \text { No } \\ \text { Opt. } \\ \hline \end{array}$ | $\begin{aligned} & 10 \\ & 10 \\ & 14 \\ & \hline \end{aligned}$ | 449.00 649.00 899.00 |  |
| YAKOV ARONOV AJDIO <br> LABORATORY | YM-100 IC-70 IC-30 SA-60 SA-30 MA-100 | $\begin{aligned} & \mathrm{BTT} \\ & 1 / \mathrm{T} \\ & 1 / T \\ & \mathrm{BT} \\ & \mathrm{BT} \\ & \mathrm{BT} / \mathrm{M} \end{aligned}$ | $\begin{aligned} & 0.3 \\ & 0.3 \\ & 0.3 \\ & 0.3 \\ & 0.3 \\ & 0.3 \end{aligned}$ |  |  | 1.5 V <br> 250 <br> 250 <br> 250 <br> 250 <br> 1.5 V |  | 110 <br> 70 <br> 30 <br> 60 <br> 30 <br> 110 |  | $\begin{aligned} & 12-22 \\ & 20-20 \\ & 20-20 \\ & 20-20 \\ & 20-20 \\ & 12-22 \end{aligned}$ | $A B 1$ $A B 1$ $A B 1$ $A B 1$ $A B 1$ $A B 1$ |  | $\begin{aligned} & 470 \\ & 47 \\ & 47 \\ & 47 \\ & 47 \\ & 470 \end{aligned}$ |  |  |  |  | $\begin{aligned} & 96 \\ & 70 \\ & 50 \\ & 70 \\ & 50 \\ & 65 \end{aligned}$ | 4200.00 <br> 3000.00 <br> 2250.00 <br> 2000.00 <br> 1500.00 <br> 5250.00 <br> Pair |  |
| ART AUDIO | Maestro <br> Quin-tet <br> Tempo | B/T/M <br> 8/T <br> B/T/M | $\begin{aligned} & 0.25 \\ & 0.25 \\ & 0.25 \end{aligned}$ | No <br> No <br> No |  |  | Yes Yes Yes | 150 25 30 | $\begin{aligned} & 150 \\ & 25 \\ & 30 \end{aligned}$ | $\begin{aligned} & 13-27 \\ & 15-22 \\ & 13-30 \end{aligned}$ | $\begin{aligned} & \mathrm{A} \\ & \mathrm{~A} \\ & \mathrm{~A} \end{aligned}$ |  | $\begin{aligned} & 100 \\ & 100 \\ & 100 \end{aligned}$ |  |  |  |  | 55 <br> Each <br> 42 <br> 35 <br> Each | 5500.00 Pair 1995.00 3500.00 Pair | Switchable to triade output. <br> As above; feedback control. Triode output. |
| ATLAS/ SDUNDOLIER | Thundra Pro CXA | 8/M |  | No |  |  | Var. | 100 | 145 |  |  |  |  |  |  |  |  | 20 | $599.00$ Each | Includes subwooter crossover (see also 'Crossovers'). |
| ATMA-SPHERE MUSIC SYSTEMS | M-50 <br> MA-1. 5 <br> MA- 1 <br> MA-2 | 8/T/M <br> B/7/M <br> B/T/M <br> 8/T/M | 0.3 <br> 0.3 <br> 0.3 <br> 0.3 | Yes <br> Yes <br> Yes <br> Yes | 600 <br> 600 <br> 600 <br> 600 | $\dagger$ <br> $\dagger$ <br> $\dagger$ <br> $\dagger$ | No No No No | 50 150 140 200 | 40 <br> 145 <br> 130 <br> 200 | $\begin{aligned} & 2.80 \\ & 2-80 \\ & 2.80 \\ & 2.80 \end{aligned}$ | A AB A A | $0$ <br> 1 <br> 0 <br> 0 | 130 <br> 100 <br> Sel. <br> Sel. |  |  |  |  | 30 <br> 54 <br> 48 <br> 103 |  | $\dagger$ Balanced, 775 mV : unbalanced, 1.5 V . Triode tubes; balanced differential design; output transtormerless. As above; Class-A operation to 100 watts. Triade tubes; balanced differential design; output transformeriess; switchable teedback. As above; includes stands. |

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This year, we introduce the Acurus RLIl Remote Line Preamplifier. Our American straight forwardness is again very evident. Acurus has created less remote for more convenience. Unlike all the typically complicated remotes.
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Our simple and straight forward approach is so respected around the world, that almost $50 \%$ of our annual production is exported, At Acurus, the American dream of achieving pride in honest workmanship and quality is alive and well.




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Easily the most powerful THX ${ }^{8}$ home cinema amplifier in the world. John Curl's design finally brings the realism of high-end to home theater.


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## W

 e're Parasound and we believe that the basis of life s something more than a double-helix string of chemicals.Sound extreme? Not if you see your audio system as the neans to recreate an actual musical event. To recreate that riving, breathing moment the band takes the stage and the magic begins.

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John Curl's latest. THX *-certified and one of a family of five critically-acclaimed amplifiers.
for music. People like John Curl, whose legendary designs virtually defined high-end audio.

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(too much), the summer '93


Consumer Electronics Show awarded us an unprecedented four Design Engineering Honors.

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[^5]


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There are lots of pretenders promising high-end performance at an affordable price. This amplifier delivers. Our audition policy guarantees it.*

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## AMPLIFIERS



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## Just because

 you've earned it, doesn't mean you have to spend it.Thank you, Vittorio. We couldn't have said it better ourselves. "If there is one affordable amp capable of being all things to all purists, it is the Solid One. One of the Ten Best Buys in Audio today." Martin G. De Wulf, Bound for Sound. Thank you, Martin. And from Taiwan's Audio Art Magazine,"The Counterpoint Solids win our Highest Recommendation to Buy." Not bad, considering that most of the less expensive audio electronics are made over there! But there is one other person we'd like to hear from. And that person is you. We warmly invite you to audition the Solid Series at the Counterpoint Dealer nearest you.


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"The Haffer 9300 THX has earned a Class B roting in the April 1993 issue of Stereophile's Recommended components. It is one of the least expensive components in Class 8 power amplifiers!"

- John Atkinson, Stereophile

High End Show
San Francisto, CA, Morch 12, 1993

Referring to the 9300 THX * . . .image focus is exceptionally good. You get a wide deep suundstage, but it is not $\mathbf{c}$ vogue presentation. Instrumentalist are precisely located. All very, very fine."

- Som Telig

Stereopitile, May 1993
Vol. 16, No. 5
"The Hafler 9500 joins that selent group \& moderately priced amplifiers whsh make life difficult for manufacturers ol higher licket electroniss."
-Thomas 1 Norton
Stereoph le, April 1993 Vol. 16, IIO. 4
*THX is a registered trodemork of Lucosfilr LId.

## Hafler

## AMPLIFIERS



## Affordable whe Excellence

Most music lovers agree that tube amplification has always offered superior musicality, but previously tended to be very expensive... until now.

Vacuum Tube Logic, a world leader in tube amplifier designs, introduces a new 80 watt/channel stereo tube amplifier and an all tube Line Stage. Lush, three dimensional sound is the reward... The price? Surprisingly affordable.


## ST-80

We proudly offer a new VTL. Amplifier for less than $\$ 1500$. Still offering a full measure of "VTL sound," but at a real world price. No other pure tube amplifier of this power rating exists at anywhere near its modest price. An audiophile "best buy."

## TL-2

This pure tube line stage offers a highly musical control preamp for CD-based systems. Warm, rich, three dimensional sound that belies its less than $\$ 1000$ price: An optional separate phono stage is available for under \$800. (TP-2)


## State of the whe Art

For the less budget conscious, we are proud to offer our top of the range amplifiers and preamplifiers that are without sonic compromise. Vacuum Tube Logic is the leader in offering the highest power tube amplifiers with the best reliability, at prices a lot less than you would think.


## MB-100

Eight years of refinement has produced an amplifier of unparalleled clarity and musicality. One listen, and you'll understand why this is one of the most favorably reviewed tube amplifiers ever produced. Rated at 100 watts (typically 130) per channel in tetrode mode, and front panel switchable to triode mode at 45 watts, the MB-100 sells for less than $\$ 3000$.


## TLi-5

The ultimate line-level preamplifier. Fully dual mono, from the separate custom silver-plated input toggle switches to the tube regulated dual mono power supply (housed in a separate matching chassis), for under $\$ 2500$.


## MB-300

Powerful, dimensional, and delicate. These are just a few words critics have chosen to describe the sound of our bestselling high powered amplifier. Producing over 300 watts per channel in tetrode mode (typically over 400), this amplifier produces ample power and headroom to drive almost any loudspeaker to "virtual reality" levels. Front panel triode switchable to 150 watts, and front panel bias meter included, all for less than $\$ 6000$.
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## Adcom's multi-c offers



## ADCOM

model GFA-2535


Adcom's award winning GFA-2535 multi-channel power amplifier is a multi-purpose component. An ideal foundation for an authentic surroundsound, home theater system, it can also serve as a centralized power source for a multi-room, multi-speaker audio system. This unique versatility together with Adcom's legendary sound quality made it the choice of the audio industry at its introduction at the 1992

Consumer Electronics Show.
A single rear panel switch lets you select either 3 or 4 channel operation. For video applications, the 3 channel mode brings your home theater to life, delivering 200 watts of clean, distortion-free sound to the center channel and 60 watts to each of the rear channels. Add it to your existing 2 channel amp and you'll be at the center of a superbly balanced, awesomely

## hannel amplifier ower of choice.

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instantaneous distortion alert

amplifier E
instantaneous distoztion alert
Q channel
cual high curreat power ampifif therma protection
powered sound stage so real you can practically touch it.

Flexibility for audio-only use is unparalleled. Use the GFA-2535 as four 60 watt amplifiers to drive two pairs of speakers. Or bridge two of the channels and send 60 watts $\times 2$ to a pair of satellite speakers and 200 watts to a single subwoofer for an incredible display of musical strength so real, you can feel it.

Three channels or four...home theater, home audio...the award-winning Adcom GFA-2535 gives you twice the versatility of ordinary amplifiers...and twice the value that has made Adcom famous.

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## AMPLIFIERS

| MANUFACTURER |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | p |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| OSC (ContInuad) | MX1500a MX2000a EX800 EX1250 EX1600 EX2500 EX4000 | $B$ <br> $B$ <br> $B$ <br> $B$ <br> $B$ <br> $B$ <br> $B$ <br> $B$ | $\begin{aligned} & 0.05 \\ & 0.05 \\ & 0.05 \\ & 0.05 \\ & 0.05 \\ & 0.05 \\ & 0.05 \end{aligned}$ | Yes Yes Yes Yes Yes Yes Yes |  | $\begin{aligned} & 1.1 \mathrm{~V} \\ & 1.1 \mathrm{~V} \\ & 1 \mathrm{~V} \\ & 1 \mathrm{~V} \\ & 1 \mathrm{~V} \\ & 1 \mathrm{~V} \\ & 1 \mathrm{y} \end{aligned}$ | Var. Var. Var. Var. Var. Var. Var. | 350 450 175 275 400 500 720 | $\begin{aligned} & 500 \\ & 650 \\ & 275 \\ & 400 \\ & 600 \\ & 750 \\ & t \end{aligned}$ | $\begin{aligned} & 20-20 \\ & 20-20 \\ & 20-20 \\ & 20-20 \\ & 20-20 \\ & 20-20 \\ & 20-20 \end{aligned}$ | $\begin{aligned} & \mathrm{H} \\ & \mathrm{H} \\ & \mathrm{Sup} . \mathrm{AB} \\ & \mathrm{H} \\ & \mathrm{H} \\ & \mathrm{H} \\ & \mathrm{H} \end{aligned}$ | $\begin{array}{\|l} 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3 \\ 3 \end{array}$ | $\begin{aligned} & 20 \\ & 20 \\ & 20 \\ & 20 \\ & 20 \\ & 20 \\ & 20 \end{aligned}$ |  |  |  |  | $\begin{aligned} & 42 \\ & 54 \\ & 40 \\ & 42 \\ & 42 \\ & 55 \\ & 64 \end{aligned}$ | $\begin{array}{r} 1258.00 \\ 1718.00 \\ 998.00 \\ 1248.00 \\ 1558.00 \\ 1998.00 \\ 2398.00 \end{array}$ | As above. As above. LED display. As above; bridgeable. As above. As above. $\dagger 1100$ watts. Bridgeable; peak limilers. |
| OUAD | 306 606 $240(R 0)$ 520 | $\begin{array}{\|l\|} \hline B \\ \hline B \\ B \\ B \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 0.01 \\ \\ 0.01 \\ 0.01 \\ 0.01 \\ \hline \end{array}$ | No <br> No <br> Yes <br> Yes |  | $\begin{array}{\|l\|} \hline 375 \\ \\ \hline \mathbf{5 0 0} \\ \text { Var. } \\ \text { Var. } \\ \hline \end{array}$ | No <br>  <br>  <br> No <br> No <br> No | $\square$ | $\begin{array}{\|l\|} \hline 110 \\ \\ \hline 240 \\ 110 \\ 175 \\ \hline \end{array}$ | $\begin{array}{\|c\|} \hline 20-20 \\ \\ 20-20 \\ 20-20 \\ 20-20 \\ \hline \end{array}$ |  | 1.5 1.5 1.5 1.5 | $\begin{aligned} & 20 \\ & 20 \\ & 10 \\ & 10 \\ & \hline \end{aligned}$ |  |  |  |  | $\begin{aligned} & 10 \\ & \\ & 25 \\ & 12 \\ & 29 \\ & \hline \end{aligned}$ | 695.00 <br>  <br>  <br> 1395.00 <br> 1199.00 <br> 1599.00 | Feed-torward errorcorrection circuitry; current-dumping design. <br> As above. As above. As above. |
| $\begin{aligned} & \text { QUICKSILVER } \\ & \text { AUDIO } \end{aligned}$ | GLA <br> KT88 Mono <br> Silver Mono M-135 | $\begin{aligned} & B / T \\ & B / T / M \\ & B / T / M \\ & B / T / B \end{aligned}$ |  | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { No } \end{aligned}$ |  |  | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { No } \end{aligned}$ | 40 60 90 135 | $\begin{aligned} & 40 \\ & 60 \\ & 90 \\ & 135 \end{aligned}$ | 13-55 <br> 13-55 <br> 16-80 $10-150$ | $\begin{aligned} & A B \\ & A B \\ & A B \\ & A B \end{aligned}$ |  | $\begin{array}{\|c\|} \hline 100 \\ 100 \\ 100 \\ 100 \\ \hline \end{array}$ |  |  |  |  | $\begin{aligned} & 42 \\ & 30 \\ & 36 \\ & 70 \end{aligned}$ | 1195.00 897.50 Each 1225.00 Each 2300.00 Each |  |
| RANE | MA 6 | B | 0.07 | Yes |  | 775 | No | 100 | 150 | 5-50 | AB | 2 | 15 |  |  |  |  | 44 | 1499.00 | Six-channel operation; bridgeable. |
| RCA | PA4500M | B | 0.5 | Yes | 20 | 900 | Var. | 50 | 80 | 20-20 | AB | 1.2 | 3 |  |  |  |  |  | 249.00 |  |
| REGA RESEAREH | Brio <br> Elex II Elicit | $\begin{array}{\|l} \hline 1 \\ 1 \\ 1 \\ \hline \end{array}$ |  |  |  |  |  | $\begin{array}{\|l\|} \hline 35 \\ 50 \\ 80 \\ \hline \end{array}$ |  |  |  |  |  |  |  |  | $\begin{aligned} & \mathrm{No} \\ & \mathrm{No} \\ & \mathrm{Yes} \\ & \hline \end{aligned}$ |  | $\begin{array}{r} 599.00 \\ 999.00 \\ 1999.00 \\ \hline \end{array}$ |  |
| ROKSAN | $\begin{array}{\|l\|} \hline \text { Rok S1 } \\ \text { Rok M1 } \end{array}$ | $\begin{array}{\|l\|} \hline B \\ B / M \end{array}$ | $\begin{aligned} & 0.05 \\ & 0.05 \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{aligned} & 60 \\ & 60 \end{aligned}$ | $\begin{array}{\|l\|} \hline 850 \\ 850 \end{array}$ | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{aligned} & 120 \\ & 120 \end{aligned}$ | 240 | $\begin{aligned} & 5-50 \\ & 5-50 \end{aligned}$ | $\begin{aligned} & A B \\ & A B \end{aligned}$ | $\begin{array}{\|l\|} \hline 3 \\ 3 \end{array}$ | $\begin{aligned} & 68 \\ & 68 \end{aligned}$ |  |  |  |  | 35 | $\begin{array}{r} 3800.00 \\ 9000.00 \\ \text { Pair } \\ \hline \end{array}$ |  |
| ROTEL | RB960BX RB980BX RB990BX RHB-10 RA960BX RA980BX | $\begin{array}{\|l} \hline B \\ B \\ B \\ B \\ 1 \\ 1 \\ \hline \end{array}$ | $\begin{aligned} & 0.03 \\ & 0.03 \\ & 0.03 \\ & 0.03 \\ & 0.03 \\ & 0.03 \\ & \hline \end{aligned}$ | No $\mathrm{N}_{0}$ $\mathrm{~N}_{0}$ $\mathrm{~N}_{0}$ $\mathrm{~N}_{0}$ $\mathrm{~N}_{0}$ | 40 | $\begin{aligned} & 150 \\ & 150 \\ & \hline \end{aligned}$ |  | 60 <br> 120 <br> 200 <br> 200 <br> 60 <br> 100 | $\begin{array}{\|l\|} \hline 100 \\ 220 \\ 330 \\ 330 \\ 100 \\ 190 \\ \hline \end{array}$ | $\begin{aligned} & 20-20 \\ & 20-20 \\ & 20-20 \\ & 20-20 \\ & 20-20 \\ & 20-20 \end{aligned}$ | $A B$ $A B$ $A B$ $A B$ $A B$ $A B$ $A B$ |  | $\begin{aligned} & 27 \\ & 33 \\ & 33 \\ & 30 \end{aligned}$ | $\begin{array}{\|} 80 \\ 80 \\ \hline \end{array}$ | $\begin{array}{r} 2.5 \\ 2.5 \\ \hline \end{array}$ | $\begin{array}{\|l\|} 160 \\ 170 \\ \hline \end{array}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & 20 \\ & 22 \\ & 33 \\ & 63 \\ & 141 / 2 \\ & 24 \end{aligned}$ | 370.00 600.00 1100.00 2700.00 500.00 700.00 | Bridgeable. As above. |
| JEFF ROWLAND DESIGN GROUP | $\begin{array}{\|l} 9 \\ 8 \\ 8 \\ \hline \end{array}$ | $B / M$ <br> $B$ | $\begin{array}{\|l\|} \hline 0.02 \\ 0.02 \\ 0.04 \\ \hline \end{array}$ | Yes Yes Yes | $\begin{aligned} & 50 \\ & 80 \\ & 70 \\ & \hline \end{aligned}$ | 136 <br> 136 <br> 136 | Sel. <br> Sel. <br> Sel. | $\begin{array}{\|l\|} \hline 350 \\ 250 \\ 60 \\ \hline \end{array}$ | $\begin{array}{r} 700 \\ 500 \\ 120 \\ \hline \end{array}$ | $\begin{aligned} & 0.1-160 \\ & 0.1-160 \\ & 0.3-300 \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { AAB } \\ & \text { AAB } \\ & \text { AAB } \\ & \hline \end{aligned}$ |  | Sel. <br> Sel. <br> Sel. |  |  |  |  | $\begin{aligned} & 225 \\ & 150 \\ & 48 \end{aligned}$ | 24.500. Pair 9800.00 3100.00 | Four chassis; available with a.c. or battery power supplies. Optional battery power supply, $\$ 3000.00$. Bridgeable. |
| SANSUI | AV9000DSP <br> (RI) <br> AUX619R | 1 | $\begin{aligned} & 0.03 \\ & 0.03 \end{aligned}$ | No <br> No | $100$ $100$ | 150 <br> 150 | $\begin{array}{\|c\|} \hline \text { No } \\ \\ \hline \end{array}$ |  | 120 | 20-20 <br> 20-20 | $\begin{array}{\|c\|} \hline A B \\ A B \\ \hline \end{array}$ | 1.4 <br> 1.4 |  | $\begin{array}{\|c\|} \hline 72 \\ 83 \\ \hline \end{array}$ | $2.5$ <br> 2.5 | $\begin{array}{\|c} \hline 200 \\ 210 \\ \hline \end{array}$ | No <br> Yes | 32.2 <br> 24.9 | $1000.00$ <br> 600.00 | AN amp with Oolby Pro Logic and digital signal processing. tFront, 80 watts $\times 2$; center, 20 watts; rear, 80 watts $\times 2$. |
| SESCOM | $\begin{array}{\|l} \hline P O-3 \\ P O-4 \\ P O-5 \\ P O-58 \\ \hline \end{array}$ |  | 0.01 <br> 0.01 <br> 0.01 <br> 0.01 <br> 0.05 | No No $\mathrm{N}_{0}$ No |  | $\begin{array}{\|c} 100 \\ 100 \\ 100 \\ 100 \\ \hline \end{array}$ | No $\mathrm{No}_{0}$ No No | $\begin{array}{\|l\|} \hline 2 \\ 4 \\ 2 \\ 2 \\ \hline \end{array}$ |  |  |  |  | $\begin{array}{\|l} \hline 10 \\ 10 \\ 10 \\ 10 \\ \hline \end{array}$ |  |  |  |  | $\begin{aligned} & 1 \\ & 1 \\ & 1 \\ & 2 \\ & \hline \end{aligned}$ | $\begin{array}{r\|} \hline 75.65 \\ 175.75 \\ \text { Each } \\ 207.35 \\ 191.00 \\ \hline \end{array}$ | Requires PO-1 power supply. As above. <br> As above. |
| SIMA | PW-3000 W-3050 Celeste 4070 Celeste 4150 Celeste 4250 | $\begin{aligned} & 1 \\ & \mathbf{I} \\ & \mathbf{B} \\ & \mathbf{B} \\ & \mathbf{B} \\ & B \end{aligned}$ | $\begin{aligned} & 0.05 \\ & 0.05 \\ & 0.05 \\ & 0.05 \\ & 0.05 \end{aligned}$ | No No Yes Yes Yes | $\begin{array}{\|l\|} \hline 50 \\ 50 \\ \hline \end{array}$ | $\begin{aligned} & \hline 200 \\ & 500 \\ & 750 \\ & 1 \mathrm{~V} \\ & 1.5 \mathrm{~V} \end{aligned}$ | No <br> No <br> Nol. <br> Sel. <br> Sel. <br>  | 50 50 70 150 250 | $\begin{array}{\|l\|} \hline 100 \\ 100 \\ 140 \\ 300 \\ 500 \\ \hline \end{array}$ | $\begin{aligned} & \hline 1-100 \\ & 1-150 \\ & 1-79 \\ & 1-79 \\ & 1-79 \end{aligned}$ | AB AAB $A B$ $A B$ $A B$ |  | $\begin{aligned} & 22 \\ & 22 \\ & 50 \\ & 50 \\ & 50 \end{aligned}$ | 79 | 2.8 | 160 | Yes | $\begin{aligned} & 15 \\ & 32 \end{aligned}$ | 695.00 995.00 1495.00 1995.00 2995.00 | Bridgeable. <br> Bridges to 300 watts; no negative teedback. As above but bridges to 600 watts. <br> As above but bridges to 900 watts. |
| SM AUDIO | Studio Series Signature Series | $\left\lvert\, \begin{aligned} & \mathrm{B} \\ & \mathrm{~B} / \mathrm{M} \end{aligned}\right.$ | $\begin{aligned} & 0.02 \\ & 0.02 \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & 100 \\ & 100 \end{aligned}$ | $\begin{array}{\|l\|} \hline 800 \\ 1 \mathrm{~V} \end{array}$ | No <br> No | $\begin{array}{\|l\|} \hline 80 \\ 100 \\ \hline \end{array}$ | $\begin{array}{\|l\|} 160 \\ 200 \end{array}$ | $\begin{aligned} & 20-20 \\ & 15-50 \end{aligned}$ | $\begin{array}{\|l\|} \hline A B \\ A B \\ \hline \end{array}$ |  | $\begin{aligned} & \hline 50 \\ & 50 \end{aligned}$ |  |  |  |  | $\begin{aligned} & 30 \\ & 42 \end{aligned}$ | 979.00 899.00 <br> Each |  |
| SOLO | $323$ $101$ | $\begin{aligned} & \mathrm{I} \\ & \mathrm{~B} / \mathrm{H} \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline 0.1 \\ 0.1 \\ \hline \end{array}$ | $\begin{array}{\|r\|} \hline \text { No } \\ \\ \text { No } \\ \hline \end{array}$ |  | $\begin{aligned} & 100 \\ & 100 \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline \text { No } \\ \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 1 \\ 100 \\ \hline \end{array}$ | $\begin{aligned} & \hline t \\ & 200 \\ & \hline \end{aligned}$ | $\begin{aligned} & 15-24 \\ & 0-30 \end{aligned}$ | $\begin{aligned} & \dagger \\ & \text { AB } \end{aligned}$ |  | $\begin{aligned} & 100 \\ & 100 \\ & \hline \end{aligned}$ | 72 | 5 |  | No | $52$ $38$ | $\begin{aligned} & 1980.00 \\ & 900.00 \end{aligned}$ | tSwitchable to 8 watts into 4 or 8 ohms, Class A, or 50 watis into 4 or 8 ohms, Class AB. |
| SONANCE | $\begin{aligned} & \text { Sonamp } 2120 \\ & \text { Sonamp } 260 \end{aligned}$ | B | $\begin{array}{\|l\|} \hline 0.05 \\ 0.05 \end{array}$ | $\begin{array}{\|l} \hline \text { No } \\ \text { No } \end{array}$ | $\begin{aligned} & 20 \\ & 20 \end{aligned}$ | $\begin{aligned} & 600 \\ & 625 \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{array}{\|l\|} \hline 120 \\ 60 \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 160 \\ 100 \end{array}$ | $\begin{aligned} & 20-20 \\ & 20-20 \end{aligned}$ | $\begin{aligned} & \text { AB } \\ & \text { AB } \end{aligned}$ | $\begin{array}{\|l\|} \hline 1.2 \\ 1.2 \\ \hline \end{array}$ | $\begin{aligned} & 47 \\ & 50 \end{aligned}$ |  |  |  |  | $\begin{array}{\|l\|} \hline 30 \\ 23 \\ \hline \end{array}$ | 325.00 | Auto on; discrete level controls. <br> Auto on; with threespeaker switching, Sonamp $260 \times 3$. $\$ 375.00$. |
| SONETIC | SA185 SA425 SA650 | $\begin{array}{\|l\|} \hline 8 \\ 8 \\ 8 \\ \hline \end{array}$ | $\begin{aligned} & 0.025 \\ & 0.025 \\ & 0.01 \\ & \hline \end{aligned}$ | Yes <br> Yes <br> Yes | $\begin{aligned} & 12 \\ & 18 \\ & 21 \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline 1.1 \mathrm{~V} \\ & 1.2 \mathrm{~V} \\ & 1.1 \mathrm{~V} \\ & \hline \end{aligned}$ | Var. <br> Var. <br> Var. | $\begin{aligned} & 110 \\ & 240 \\ & 365 \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline 165 \\ 360 \\ 550 \\ \hline \end{array}$ | $\begin{aligned} & 20-20 \\ & 20-20 \\ & 20-20 \\ & \hline \end{aligned}$ | Sup. AB Sup. AB Sup. AB | $\begin{aligned} & 2 \\ & 2 \\ & 2 \\ & \hline \end{aligned}$ | $\begin{aligned} & 20 \\ & 20 \\ & 20 \\ & \hline \end{aligned}$ |  |  |  |  | $\begin{aligned} & 24 \\ & 34 \\ & 54 \\ & \hline \end{aligned}$ | 578.00 698.00 998.00 | Bridgeable. As above. As above. |
| SONIC FRONTIERS | SFS-40 <br> SFS-80 <br> SFM-160 <br> SFC-1 |  |  | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { No } \end{aligned}$ |  | $\begin{aligned} & 800 \\ & 1.2 \mathrm{~V} \\ & 1.4 \mathrm{~V} \\ & 400 \end{aligned}$ | $\begin{aligned} & \hline \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{array}{\|l\|} \hline 40 \\ 80 \\ 160 \\ 40 \end{array}$ | $\begin{array}{\|c\|} \hline 40 \\ 80 \\ 160 \\ 40 \end{array}$ | $\begin{array}{\|c\|} \hline 20-20 \\ 20-20 \\ 20-20 \\ 20-20 \end{array}$ | AB1 AB1 AB1 AB1 | 3 <br> 3 <br> 3 | 100 100 100 50 |  |  |  |  | $\begin{gathered} 36 \\ \\ 66 \\ 58 \\ 60 \end{gathered}$ | $\begin{array}{r} 1695.00 \\ 2895.00 \\ 5495.00 \\ \text { Pair } \\ 1795.00 \end{array}$ | Adjustable bias; $3.5-8$-, and $14.5-0 \mathrm{hm}$ taps. As above. Adjustable bias; 2-, 4.5-, and 8 -ohm taps. Adjustable bias; 6 -0hm taps. |

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## AMPLIFIERS



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Hardly.
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TFM-35 power amp. 250 watts per channel *
ing in multi-amp and multi-channel systems, as well as for direct sourcing to CD players, tape decks, and tuners.

Well, all this power is dandy, but you've got to control it.

We recommend Carver's newest preamptuners, the CT-3 and CT-6. Both with built-in Sonic Holography ${ }^{\text {io }}$, distortionfree FM reception via


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## PREAMPLIFIERS



# Adcom’s GFP-565 Preamp: Pure and Simple. 



## In Search of Sonic Perfection, Adcom Took the Path of Least Resistance

The fewer circuits a musical signal encounters on its way to your loudspeaker system, the greater its muscial purity will be. Now, through obsessive attention to detail and design ingenuity, Adcom has created the GFP-565 the world's first affordable preamplifier with direct, linear gain path circuitry. By combining the GFP-565 with any of Adcom's power amplifiers, you can experience the exceptionally lifelike sound which has astonished even the most demanding critics.

> From Input to Output, the Signal Path is as Direct, Pure and Simple as Possible


By gold plating all input and output jacks, and then directly mounting all jacks, switches, potentiometers and other laboratory grade components on a double copper-plated. glass epoxy printed iircuit board, signal losses and noise are dramatically reduced.

## Three Sets of Outputs for the Perfect Balance of Performance and Flexibility

You can use one or more sets of outputs: 1) BYPASS direct-coupled before tone controls, filters, etc. for the most direct path to your power amplifier while retaining control of volume and balance. 2) LAB - direct-coupled with no output-coupling capacitors yet with tone, filter and loudness controls. 3) NORMAL - same as LAB but with highest quality output capacitors for use with amplifiers needing the extra protection of ultra-low-frequency roll-off.

Bi-amped and tri-amped systems are easily accommodated by this flexible arrangement.

## Pure Convenience

The minimalist aesthetics of the GFP-565 are deceptive in their simplicity. Without being overly complicated to use, this preamplifier is able to integrate and control all of the components in the most sophisticated of music systems. There are five high-level inputs as well as a phono input. A separate front-panel switch allows the use of an external processor, only when needed, leaving both tape circuits free. And, of course, you may listen to one input while recording from another.

## More Sound, Less Money

Adcom stereo components have a reputation for sounding superior to others costing two and three times more. Keeping faith with this tradition, Adcom took the path of least resistance. Why not do the same? Ask your authorized Adcom dealer for a demonstration of this remarkable stereo preamplifier. Please write or call for a fully detailed brochure. You'll discover the best value in high performance preamplifiers. Pure and simple.

 markedly-astoundingly-improve the performance of any deserving audio system, this is it. Proving that even after two decades of relentless pursuit by the dedicated engineers of Audio Research. the lights are still on.

## audioreserrch

## PREAMPLIFIERS



## PREAMPLIFIERS




## Performance with Style

Are you getting the most out of your speakers? Did you know that proper mounting and room placement dramatically improves sound quality? Most major speaker manufacturers recommend loudspeaker supports for optimum performance; many of the best known brands specifically recommend or use Sanus Foundations®. Demand the most from your audio dollar. Give your music a Sound Foundation!

## Natural Foundations®

Natural Foundations are constructed of MDF and finished with three coats of hand sanded black lacquer. MDF is quieter and stronger than other wood products, and is the cabinet material used in the best loudspeakers. All models feature brass speaker isolation studs, adjustable floor spikes, neoprene isolation pads, and a concealed speaker wire path. Two models are available with solid oak or walnut pillars.

## Designer Foundations®

Designer Foundations are a contemporary alternative to the utilitarian look of most steel loudspeaker supports. Performance is on par with the finest European and domestic designs, yet the price is affordable. Designer Foundations feature fillable steel pillars, adjustable floor spikes, HDF top plates, neoprene isolation pads, and brass speaker isolation studs.

Brass Isolation Studs


Adjustable Floor Spikes



## PREAMPLIFIERS

| MANUFACTU |  | 1 |  |  |  | '25 80 |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| $\begin{aligned} & \text { EDGE } \\ & \text { ELECTRONICS } \end{aligned}$ | $\begin{array}{\|l\|} \hline \text { P-1 } \\ \hline \text { P-1R(RI) } \\ \hline \end{array}$ | $\begin{aligned} & \mathrm{S} \\ & \mathrm{~S} \\ & \hline \end{aligned}$ | $\begin{aligned} & \mathrm{L} \\ & \mathbf{L} \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{aligned} & 5-50 \\ & 5.50 \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline 15 \\ 15 \\ \hline \end{array}$ | $\begin{aligned} & 0.005 \\ & 0.005 \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline 1 / 0 \\ 1 / 0 \\ \hline \end{array}$ |  | $\begin{aligned} & 1 \\ & 2 \\ & \hline \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ |  |  |  | $\begin{aligned} & 299.00 \\ & 425.00 \end{aligned}$ |  | Passive. |
| EIOOLON RESEARCH | Salesia <br> Julia | $\begin{aligned} & T \\ & T \end{aligned}$ | MM/L <br> MM/MC L |  | $\begin{aligned} & 0.5-150 \\ & +0 .-1.5 \\ & 0.1-200 \\ & +0,-1.5 \end{aligned}$ | $\begin{array}{\|l\|} \hline 70 \\ 85 \\ \hline \end{array}$ | $\begin{aligned} & 0.01 \\ & 0.01 \end{aligned}$ |  | Sel. <br> Sel. | $2$ <br> 2 | $\begin{aligned} & 0 \\ & 0 \end{aligned}$ | Yes <br> Var. | $\begin{aligned} & 1.45 \\ & 1.45 \end{aligned}$ | $\begin{aligned} & 78 \\ & 79 \end{aligned}$ | 65 | $\begin{aligned} & 1200.00 \\ & 4300.00 \end{aligned}$ |  | Passive and active RIAA. |
| ELECTROCOMPANIET | $\begin{array}{\|l\|} \hline \text { EC-3MC } \\ \text { EC-3MM } \\ \text { ECP-1 } \\ \hline \end{array}$ | S S S | MC L MML MM/MC | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{aligned} & 20-20 \\ & 20-20 \\ & 20-20 \\ & \hline \end{aligned}$ |  |  | $\begin{array}{\|l\|} \hline 1 / 0 \\ 1 / 0 \\ 1 / 0 \\ \hline \end{array}$ | 500 500 | $\begin{aligned} & 6 \\ & 6 \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \text { No } \\ & \hline \end{aligned}$ |  | $\begin{aligned} & 80 \\ & 80 \\ & \hline \end{aligned}$ | $\begin{aligned} & 80 \\ & 80 \end{aligned}$ | $\begin{array}{r} 1999.00 \\ 1799.00 \\ 599.00 \\ \hline \end{array}$ |  | Line-level version, EC-4, \$1499.00. As above. |
| ELECTRONIC VISIONARY SYSTEMS | UA24 <br> Ecstasy 1000 <br> Ecstasy 2000 | S | $\begin{aligned} & \mathbf{L} \\ & \mathbf{L} \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{aligned} & 0-1 \mathrm{M} \\ & 0-1 \mathrm{M} \\ & 0-10 \mathrm{M} \\ & \hline \end{aligned}$ | 12 |  | Opt. <br> Opt. Opt. | 200 | 0 <br> Opt. Opt. | $\begin{aligned} & 0 \\ & \\ & 0 \\ & 0 \\ & \hline \end{aligned}$ | No <br> No <br> No |  |  |  | $\begin{array}{r} 305.00 \\ \text { Pair } \\ \\ 700.00 \\ 1200.00 \\ \hline \end{array}$ |  | Passive; 24-position stepped attenuators; mount on amp; with balanced in and out, UA24B, $\$ 450.00$ per pair. Passive; stepped attenuator. Active bufter or gain stage. |
| ELITE | $\begin{array}{\|l} \mathrm{C}-91 \\ \mathrm{C}-72 \\ \hline \end{array}$ | $\begin{aligned} & \mathrm{S} \\ & \mathrm{~S} \end{aligned}$ | MM/MC/L MM/MCL | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \hline \end{aligned}$ | 20-20 | 8 | 0.001 |  |  | 6 | $\begin{aligned} & 3 \\ & 2 \\ & \hline \end{aligned}$ | $\begin{aligned} & \mathrm{No} \\ & \mathrm{No} \\ & \hline \end{aligned}$ | $\begin{aligned} & 2.5 \\ & 2.0 \\ & \hline \end{aligned}$ | $\begin{aligned} & 96 \\ & 74 \\ & \hline \end{aligned}$ | 86 | $\begin{array}{r} 1300.00 \\ 850.00 \\ \hline \end{array}$ |  | Video switching. As above. |
| ENCORE | OL2010.2 | H | MM/MCL | No | $\begin{aligned} & 0.1-200 \\ & +0,-3 \end{aligned}$ | 22 | 0.025 |  | 125 | 2 | 0 | No | 4.0 | 65 | 65 | 3350.00 |  | No potentiometers or switches in signal path; stepped volume control; without phono stage, OL2010.2-L, \$2895.00. |
| ENSEM8LE | Phonomaster <br> Virtuoso | S <br> H | MM/MC L | No | $\begin{aligned} & 4-60 \\ & 4-60 \end{aligned}$ |  |  | No |  |  | 0 | No <br> No |  |  |  | $\begin{array}{r} 650.00 \\ 3900.00 \end{array}$ |  | Optional external power supply, $\$ 220.00$. <br> Optional external MM/MC phono stage. |
| ESOTERIC SOUNO SOUNO | Vintage | S | MM |  | $20-40 \pm 0.5$ | 4.5 | 0.01 |  |  |  | 2 | No | 4.5 | 70 |  | 335.00 <br> Each |  | Mono; compensation for mono records; vertical/ateral switch. |
| ESSENCE | Sapphire Emerald | T | $\begin{aligned} & \mathrm{L} \\ & \mathrm{~L} \end{aligned}$ | $\begin{array}{\|l\|} \hline \text { No } \\ \text { No } \\ \hline \end{array}$ | $\begin{aligned} & 3-100 \\ & 3-100 \end{aligned}$ | $\begin{array}{\|l} 24 \\ 24 \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 0.01 \\ \hline 0.01 \\ \hline \end{array}$ | Opt. Opt. |  | $\begin{array}{\|l\|} \hline 1 \\ 1 \\ \hline \end{array}$ | $\begin{aligned} & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & \mathrm{No} \\ & \mathrm{No} \\ & \hline \end{aligned}$ |  |  |  | $\begin{array}{\|l\|} \hline 3450.00 \\ 5850.00 \\ \hline \end{array}$ |  |  |
| EXPOSURE | $\begin{aligned} & X \mid X \\ & X V I I \\ & X \mid V / I X \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline \mathbf{S} \\ & \mathrm{S} \\ & \mathrm{~S} \end{aligned}$ | L <br> MM/MC/L MM/MC/L |  | $\begin{aligned} & 20-20 \pm 0.5 \\ & 20-20 \pm 0.5 \\ & 20-20 \pm 0.5 \end{aligned}$ | $\begin{array}{\|l\|} \hline 15 \\ 15 \\ 10 \\ \hline \end{array}$ |  |  | $\begin{array}{\|l\|} \hline 150 \\ 150 \\ 150 \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 2 \\ 2 \\ 2 \\ \hline \end{array}$ |  | $\begin{aligned} & \mathrm{No} \\ & \mathrm{No} \\ & \mathrm{No} \\ & \mathrm{NoO} \\ & \hline \end{aligned}$ | $\begin{array}{l\|l} 3.0 \\ 3.0 \end{array}$ |  |  | $\begin{aligned} & 1295.00 \\ & 1495.00 \\ & 5795.00 \\ & \hline \end{aligned}$ |  |  |
| EXPRESSIVE <br> TECHNOLOGIES | SU-1 |  | MC |  | $\begin{aligned} & 0.7-150 \\ & +0,-0.1 \\ & \hline \end{aligned}$ | 25 |  | 1/0 |  |  |  | No |  |  | 100 | 3500.00 |  | Transformer; 28-dB fixed gain. |
| FIRST SOUNO | Reference I Reference II Relerence Signature |  | $\begin{aligned} & \mathrm{L} \\ & \mathrm{~L} \\ & \mathrm{~L} \end{aligned}$ | No No No | $0.1-250$ $0.1-250$ $0.1-250$ |  |  |  |  | $\begin{aligned} & 1 \\ & 1 \\ & 1 \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \text { No } \end{aligned}$ |  |  |  | $\begin{aligned} & 1200.00 \\ & 2200.00 \\ & 4300.00 \end{aligned}$ |  | Passive; stepped attenuators. As above. As above. |
| FM ACOUSTICS | Resolution <br> Series 266 <br> Resolution <br> Series 244A <br> Resolution <br> Series 2448 <br> Resolution <br> Series 244C <br> FM 240 <br> Resolution <br> Series 222 | S S S S S | L <br> MC/L <br> MM/L <br> L <br> MM/L <br> MM/MC | No No No No No | $20-20 \pm 0.03$ $20-20 \pm 0.03$ $20-20 \pm 0.03$ $20-20 \pm 0.03$ $20-20 \pm 0.05$ $20-20 \pm 0.08$ | 28 14 12 14 12 12 | 0.003 0.03 0.025 0.025 0.018 | 1/0 <br> Opt. <br> Opt. <br> Opt. <br> Opt. <br> 1/0 | $\begin{aligned} & 100 \\ & 100 \\ & 100 \\ & 100 \\ & 75 \end{aligned}$ | $\begin{aligned} & 1 \\ & 1 \\ & 1 \\ & 1 \\ & 1 \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \text { Yes } \\ & \text { No } \\ & \text { Yes } \\ & \text { Sel. } \end{aligned}$ | $\begin{aligned} & 3.1 \\ & 2.6 \\ & 10 \end{aligned}$ | $\begin{aligned} & \dagger \\ & \dagger \\ & 104 \end{aligned}$ | $\dagger$ <br> 89 | $\begin{array}{\|c} 19,800 \\ 11,300 \\ 9600.00 \\ 7500.00 \\ 7500.00 \\ 9980.00 \end{array}$ |  | No overall or local feedback. $\dagger 90$ io 104 dB . <br> As above. <br> Balanced MM/MC inputs |
| FORTE | $\begin{aligned} & \text { F44(RI) } \\ & \text { F45 } \end{aligned}$ | $\begin{aligned} & \mathrm{S} \\ & \mathrm{~S} \end{aligned}$ | $\begin{aligned} & \mathbf{L} \\ & \mathbf{L} \end{aligned}$ | $\begin{array}{\|l\|} \hline \text { No } \\ \mathrm{No} \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 0-200 \pm 1 \\ 0-200 \pm 1 \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 11 \\ 11 \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline .0005 \\ 0.005 \\ \hline \end{array}$ | $\begin{array}{r} 10 \\ 10 \\ \hline \end{array}$ |  | $\begin{array}{\|l} \hline 2 \\ 2 \\ \hline \end{array}$ | $\begin{aligned} & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & \mathrm{Noo} \\ & \mathrm{No} \\ & \hline \end{aligned}$ |  |  |  | $\begin{array}{r} 1250.00 \\ 990.00 \\ \hline \end{array}$ |  | Discrete Class A. As above. |
| $\begin{aligned} & \text { GEMINI } \\ & \text { SOUNO } \\ & \text { PRDOUCTS } \\ & \hline \end{aligned}$ | Pvx-20 | S | MM/L | No | 10-100 +0,-3 | 10 | 0.005 |  |  | 1 | 2 |  | 2.4 | 75 |  | 245.00 |  |  |
| GOLOMUNO | Mimesis 10P (RO) Mimesis 7NP <br> Mimesis 2NP (RO) | $\begin{aligned} & \mathrm{S} \\ & \mathrm{~S} \\ & \mathrm{~S} \end{aligned}$ | $\begin{aligned} & \mathrm{L} \\ & \mathrm{~L} \\ & \mathrm{~L} \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{aligned} 20-20 & \pm 0.1 \\ 0-650 & \pm 3 \\ 0-850 & \pm 3 \end{aligned}$ | $\begin{array}{\|c\|} 13 \\ 35 \\ 40 \end{array}$ | $\begin{aligned} & 0.01 \\ & 0.01 \\ & 0.01 \end{aligned}$ | No | $\begin{aligned} & 100 \\ & 100 \end{aligned}$ | 2 <br> 2 <br> 2 | $\begin{aligned} & 0 \\ & 0 \\ & 0 \end{aligned}$ | No <br> Sel. <br> Sel. |  |  |  | $\begin{array}{r} 11.250 \\ 5000.00 \\ 8900.00 \end{array}$ |  | Six line inputs, eight digital outputs (see also "0/A Converters'). With MM or MC phono stage, $\$ 6150.00$. <br> Star ground conliguration; a.c. polarity switch; with MM or MC phono stage, \$11,400. |
| $\begin{aligned} & \text { GOROON } \\ & \text { INSTRUMENTS } \end{aligned}$ | Gordon(R1) | S |  | No |  |  |  |  |  |  |  |  |  |  |  |  |  | Custom-built. |
| GRYPHON AUOID DESIGNS | Linestage XT XTC | $\mathbf{S}$ $\mathbf{S}$ <br> S | LMMMC/L $\mathrm{L}$ | No No <br> No |  |  |  | 0 $10$ |  | 1 <br> 1 | $\begin{array}{\|l\|} \hline 0 \\ 0 \\ \hline \end{array}$ | $\begin{array}{\|l} \hline \text { No } \\ \text { No } \\ \text { No } \end{array}$ |  |  |  | $\begin{aligned} & 4500.00 \\ & 9100.00 \\ & 10.000 . \end{aligned}$ |  | External power supplies. As above; separate phono power supplies; without phono stage. \$7400.00. |
| Hafler | $\begin{aligned} & 945(\mathrm{RI}) \\ & 915 \\ & \mathrm{P90} \\ & \hline \end{aligned}$ | $\begin{aligned} & \mathrm{S} \\ & \mathrm{~S} \\ & \mathrm{~S} \end{aligned}$ | L L MM/MC |  | $\begin{aligned} & 8-170 \\ & 8-170 \end{aligned}$ | $\begin{array}{\|l\|} \hline 5 \\ 6 \end{array}$ | $\begin{aligned} & 0.02 \\ & 0.02 \end{aligned}$ |  |  | $2$ $2$ |  | $\begin{aligned} & \text { No } \\ & \text { Noo } \end{aligned}$ | 6 | 65 | 80 | From 700.00 From 750.00 200.00 |  | Tuner/preamp (see also "Tuners"); Class $A$; video switching. Class A. |
| HARMAN KARODN | $\begin{aligned} & \text { PT2300(RI) } \\ & \text { AP2500 } \end{aligned}$ | $\begin{aligned} & \mathbf{S} \\ & \mathbf{S} \end{aligned}$ | MM/L <br> MMMCL | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{aligned} & 0.5-200+0 .-3 \\ & 0.3-250+0 .-3 \end{aligned}$ | $\begin{aligned} & 6 \\ & 8 \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline 0.005 \\ 0.007 \\ \hline \end{array}$ |  | $\begin{aligned} & 135 \\ & 135 \\ & \hline \end{aligned}$ | $\begin{array}{\|l} 2 \\ 2 \\ \hline \end{array}$ | $\begin{array}{\|l} 2 \\ 0 \\ \hline \end{array}$ | No <br> No | $\begin{aligned} & 2.2 \\ & 2.1 \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline 82 \\ 82 \\ \hline \end{array}$ | 82 | $\begin{aligned} & 599.00 \\ & 599.00 \\ & \hline \end{aligned}$ |  | Tuner/preamp (see also "Tuners"): video swithing. |
| JOULE ELECTRA | $\begin{aligned} & \text { LA50 } \\ & \text { LA100 } \\ & \text { LA200(RI) } \end{aligned}$ | $\begin{aligned} & \hline T \\ & T \\ & T \end{aligned}$ | $\begin{aligned} & L \\ & L \\ & L \end{aligned}$ |  | $\begin{aligned} & 5-144+0,-1 \\ & 5-144+0,-1 \\ & 5-144+0,-1 \end{aligned}$ | $\begin{array}{\|l\|} \hline 7 \\ 9 \\ 15 \end{array}$ | $\begin{array}{\|l\|} \hline 0.1 \\ 0.1 \\ 0.1 \end{array}$ | 1/0 | $\begin{aligned} & 250 \\ & 250 \\ & 250 \end{aligned}$ | $\begin{aligned} & 1 \\ & 1 \\ & 1 \end{aligned}$ | $\begin{array}{\|l\|} \hline 0 \\ 0 \\ 0 \end{array}$ | Yes <br> Yes <br> Sel. |  |  |  | 1595.00 2495.00 3995.00 |  | 50-joule power supply. <br> 100-joule tube power supply. Wired remote; two mono units and 200-joule tube power supply. |

## PREAMPLIFIERS



## PREAMPLIIIERS



## Tune in to The New Adjectives On...



Saturdays at $4: 30$ (et) on CNBC.


After receiving some very impressive adjectives from serious reviewers, the producers of SIGHTS $\mathcal{E}$ SOUNDS are pleased to feature B\&K Components, Ltd. on their October 31st show. "From bass to treble, the sound quality is remarkable"..."I was bowled over by its smoothness and detail" ... "finally an AV system with great sounds"...are among a few of their descriptions for B\&K.

Reviewers applauded the AVP2000 Audio/Video Control Center with remote control, independent two-zone operation, and
easy-to-use programmable presets. They called them: "best in their class"... with "an amazing sense of clarity and immediacy".

And to open a whole new dimension in ease of use and great sound, you might want to pair the AVP2000 with the EX4420 dual mono amplifier. This combination will "bring your home theatre to life" with balanced inputs; four large computer-grade capacitors; excellent channel-to-channel separation; and superb bass response that extends to the lowest frequencies.

## E(I) BGK COMPONENTS, LTD. • 1-800-543-5252

## PREAMPLIFIERS





B
ryston's new 3B NRB amplifier is a companion piece to the $4 \mathrm{~B} N R \mathrm{~B}$ and 7B NRB, with a similarly optimized interface between power supply and signal circuitry, and the same ultra-linear amplification as its larger counterparts. Its 120 watts per channel is a popular size for a wide range of music systems requiring the highest quality source of power. he 3B NRB uses Bryston's proprietary QuadComplementary output section, which improves linearity to a new standard of accuracy, while virtually eliminating aggressive higher harmonic distortion products. From input to output, all the circuitry in the NRB series of amps has been optimized for the most musical amplification possible, with dual power supplies to provide precise and focused imaging. New, three-colour LED glow green for power-on, yellow for transient clipping, and red to indicate longer-term overload or any other departure from linearity, including shorted outputs, or strong out-of-band information, like RF or DC. Gold plated RCA and XLR input
connectors allow unbalanced or balanced operation at the flick of a rear mounted switch. A ground lift switch separates system ground from audio ground to reduce annoying ground loops and system hum. Finally, switchable monaural operation is available if higher power requirements become necessary. though the description of circuit innovations can indicate the research and commitment we bring to the design of the finest audio products, only in the listening does the result of that dedication become clear. Bryston's 3B NRB is capable of doing justice to the most refined
 sound system, with the subtlest details of the musical fabric revealed in their original form. $W_{\text {e invite you to }}$ experience the musical accuracy, long term reliability and excellent value the Bryston 3 B NRB represents.

57 Westmore Dr., Rexdale, Ontario, Canada M9V 3 Yb
Tel: (416) 746-1800 Fax: (416) 746-0308
Brystonvermont, RFD\#ç Berlin, Montpelier, Vermont 05602
Tel: (802) 223-6159 Fax: (802) 229-2210
Enter No. 20 on Reader Service Card


## PREAMPLIFIERS

\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline MANUFACTURER \& \multicolumn{6}{|l|}{} \&  \&  \&  \&  \& \&  \&  \&  \& \&  \&  \\
\hline PROCEED \& PAV(R1) \& S \& L \& No \& \& \& \& IV \& \& 4 \& 0 \& No \& \& \& \& 4000.00 \& Video switching; surround sound decoding (see also "Surround Processors"). \\
\hline PS AUDIO \& \begin{tabular}{l}
PS 6.2 \\
PS 5.7 PS PhonoLink
\end{tabular} \& S
S
S \& \begin{tabular}{l}
L \\
MM/MC/L MM/MC
\end{tabular} \& \[
\begin{aligned}
\& \text { No } \\
\& \text { No }
\end{aligned}
\] \& \[
\begin{aligned}
\& 20-20 \pm 0.1 \\
\& 20-20 \pm 0.1 \\
\& 20-20 \pm 0.25
\end{aligned}
\] \& \[
\begin{aligned}
\& 12 \\
\& 12
\end{aligned}
\] \& \[
\begin{aligned}
\& 0.01 \\
\& 0.01 \\
\& 0.01
\end{aligned}
\] \& \& \[
\begin{array}{|l|}
\hline 90 \\
90
\end{array}
\] \& 1 \& 0 \& \[
\begin{aligned}
\& \mathrm{No} \\
\& \mathrm{No} \\
\& \mathrm{Na}
\end{aligned}
\] \& \[
\begin{aligned}
\& 4.8 \\
\& 4.8
\end{aligned}
\] \& \[
\begin{aligned}
\& 85 \\
\& 85
\end{aligned}
\] \& \[
\begin{aligned}
\& 74 \\
\& 74
\end{aligned}
\] \& \[
\begin{aligned}
\& 695.00 \\
\& 895.00 \\
\& 695.00
\end{aligned}
\] \& \begin{tabular}{l}
Direct coupled; active or passive operation. \\
As above. \\
Passive EQ.
\end{tabular} \\
\hline PSE \& Studio SL Phono \& S \& MM/MC/L \& No \& 5-100 + 0. \(\cdot 0.1\) \& 12 \& 0.005 \& 0 \& 250 \& 1 \& 0 \& Sel. \& 10 \& 80 \& 78 \& 950.00 \& Without phono stage, Studio SL Line, \(\$ 850.00\). \\
\hline PTS \& AV1000(RI) \& S \& L \& No \& 20.20 \& 7 \& 0.005 \& \& 50 \& 2 \& 2 \& Na \& \& \& \& 599.00 \& Tuner/preamp (see also "Tuners"). \\
\hline PUREST SOUND SYSTEMS \& \[
\begin{aligned}
\& 500 \\
\& \text { Dual Mono } \\
\& 1000 \\
\& \text { Dual Mono } \\
\& 1000 \\
\& \text { Dual Mono } \\
\& \text { Deluxe } \\
\& \hline
\end{aligned}
\] \& S \& \[
\begin{aligned}
\& \mathrm{L} \\
\& \mathrm{~L}
\end{aligned}
\]
L \& \begin{tabular}{l}
No \\
No \\
No
\end{tabular} \& \[
\begin{aligned}
\& \hline 0-150 \\
\& 0-150 \\
\& 0-150
\end{aligned}
\] \& \& \[
\begin{aligned}
\& 0.001 \\
\& 0.001 \\
\& 0.001
\end{aligned}
\] \& \begin{tabular}{l}
No \\
No \\
No
\end{tabular} \& \& 1
2
2 \& 0 \& \[
\begin{aligned}
\& \text { No } \\
\& \text { No } \\
\& \text { No }
\end{aligned}
\] \& \& \& \& \[
\begin{aligned}
\& 295.00 \\
\& 465.00 \\
\& 495.00
\end{aligned}
\] \& \begin{tabular}{l}
Passive. \\
As above. \\
Active stage can be bypassed.
\end{tabular} \\
\hline QUAD \& \begin{tabular}{l}
\[
66(\mathrm{RI})
\] \\
34
\end{tabular} \& \[
\begin{aligned}
\& \mathbf{S} \\
\& \mathbf{S} \\
\& \hline
\end{aligned}
\] \& MM/MC/L MM/MC/L \& \[
\begin{aligned}
\& \text { No } \\
\& \text { No }
\end{aligned}
\] \& \[
\begin{aligned}
\& 15-20 \pm 0.2 \\
\& 20-20 \pm 0.5
\end{aligned}
\] \& \[
2
\]
\[
2
\] \& \begin{tabular}{l}
0.025 \\
0.05
\end{tabular} \& \& \[
\begin{array}{|l|}
\hline 300 \\
300 \\
\hline
\end{array}
\] \& \[
\begin{aligned}
\& 2 \\
\& 1 \\
\& \hline
\end{aligned}
\] \& \[
\begin{array}{|l|}
\hline 6 \\
\hline 6 \\
\hline
\end{array}
\] \& \[
\begin{aligned}
\& \text { No } \\
\& \text { No } \\
\& \hline
\end{aligned}
\] \& \[
\begin{array}{r}
3 \\
3 \\
\hline
\end{array}
\] \& \[
\begin{aligned}
\& 90 \\
\& 75 \\
\& \hline
\end{aligned}
\] \& 90
80 \& \[
\begin{array}{|r|}
\hline 1709.00 \\
870.00 \\
\hline
\end{array}
\] \& Buffered video input; without plug-in MC board, \$1599.00. Without plug-in MC board, \(\$ 795.00\). \\
\hline QUICKLINE PRODUCTS \& \[
\begin{aligned}
\& \text { PA-4 } \\
\& \text { CC-1 } \\
\& \text { CC-2 } \\
\& \text { CC-3 }
\end{aligned}
\] \& S \&  \& \& \(10-20 \pm 0.2\) \& 12 \& 0.01 \& \& \& \begin{tabular}{|l|l|}
2 \\
1 \\
0 \\
\hline
\end{tabular} \& \[
\begin{array}{|l}
0 \\
0 \\
0 \\
\hline
\end{array}
\] \& \begin{tabular}{l}
No \\
No \\
No \\
No \\
No \\
\hline
\end{tabular} \& 3.1 \& 90 \& 75 \& \[
\begin{array}{r}
1595.00 \\
1395.00 \\
995.00 \\
495.00 \\
\hline
\end{array}
\] \& \begin{tabular}{l}
External power supply. Passive. \\
As above. \\
As above.
\end{tabular} \\
\hline QUICKSILVER AUDID \& Preamp Moving Coil Translormer \& T \& \[
\begin{aligned}
\& \text { MM/L } \\
\& M C
\end{aligned}
\] \& No \& 1-650 + 0,-3 \& \[
\begin{aligned}
\& 65 \\
\& 2.8
\end{aligned}
\] \& . 0005 \& \& 20 \& 1 \& 0 \& \[
\begin{aligned}
\& \mathrm{No} \\
\& \mathrm{No}
\end{aligned}
\] \& 5 \& \& \& \[
\begin{array}{r}
1995.00 \\
335.00
\end{array}
\] \& 12.5-ohm output impedance. Translormer; 23-dB fixed gain; for cartridges with output impedance from 0.5 to 40 ohms. \\
\hline ROKSAN \& \begin{tabular}{l}
Rok L1 \\
Rok L2 \\
ArtaXerxes
\end{tabular} \& S
S
S \& \& \[
\begin{aligned}
\& \text { No } \\
\& \text { No }
\end{aligned}
\] \& \[
\begin{aligned}
\& 0.5-120 \pm 3 \\
\& 5-25 \\
\& 20-20 \pm 0.2 \\
\& \hline
\end{aligned}
\] \& \[
\begin{array}{|l|}
\hline 9 \\
7 \\
8 \\
\hline
\end{array}
\] \& \[
\begin{aligned}
\& 0.001 \\
\& 0.005 \\
\& 0.002 \\
\& \hline
\end{aligned}
\] \& \begin{tabular}{l}
No \\
No
\end{tabular} \& 350 \& 1 \& 0 \& \[
\begin{array}{|l|}
\hline \text { No } \\
\hline \text { No } \\
\hline
\end{array}
\] \& \& \& 83 \& \[
\begin{aligned}
\& 5300.00 \\
\& 2500.00 \\
\& 1400.00 \\
\& \hline
\end{aligned}
\] \& \begin{tabular}{l}
External power supply, Rok DS-1, \$1500.00. \\
As above.
\end{tabular} \\
\hline ROTEL \& \[
\begin{aligned}
\& \text { RC960BX } \\
\& \text { RC980BX } \\
\& \text { RHA-10 } \\
\& \text { RHC-10 }
\end{aligned}
\] \& \[
\begin{aligned}
\& \hline \mathbf{S} \\
\& \mathbf{S} \\
\& \mathbf{S}
\end{aligned}
\] \& \begin{tabular}{l}
MM/MC/ MM/MC/ L \\
L
\end{tabular} \& \[
\begin{aligned}
\& \text { No } \\
\& \text { No } \\
\& \text { No }
\end{aligned}
\] \& \[
\begin{aligned}
\& 4-100+0.5,-3 \\
\& 4-100+0.5,-3 \\
\& 4-100+0,-1
\end{aligned}
\] \& \[
\begin{aligned}
\& 10 \\
\& 10 \\
\& 10
\end{aligned}
\] \& \[
\begin{aligned}
\& 0.004 \\
\& 0.004 \\
\& 0.004
\end{aligned}
\] \&  \& \[
\begin{aligned}
\& 150 \\
\& 150 \\
\& 150
\end{aligned}
\] \& \[
\begin{aligned}
\& \hline 2 \\
\& 2 \\
\& 2 \\
\& 1
\end{aligned}
\] \& \[
\begin{array}{|l|}
\hline 2 \\
0 \\
0
\end{array}
\] \& \& \[
\begin{array}{l|l|}
2.5 \\
2.5
\end{array}
\] \& \[
\begin{aligned}
\& 80 \\
\& 85
\end{aligned}
\] \& \[
\begin{aligned}
\& 70 \\
\& 70
\end{aligned}
\] \& \[
\begin{array}{r}
300.00 \\
550.00 \\
1800.00 \\
1000.00
\end{array}
\] \& \begin{tabular}{l}
Optional phono stage. \\
Passive; with optional phono stage, \\
\$2899.00.
\end{tabular} \\
\hline JEFF ROWLAND OESIGN GROUP \& \begin{tabular}{l}
Consummate (RI) \\
Consummate Phono Stage Consummate Phono Stage II Consonance (RI)
\end{tabular} \& S
s
s
s \& \begin{tabular}{l}
L \\
MM/MC \\
MM/MC \\
MM/MC/L
\end{tabular} \& No

No \& \[
$$
\begin{aligned}
& 0.05-160 \\
& +0,-3 \\
& 5-220+0 .-3 \\
& 0.15-220 \\
& +0 .-3 \\
& 0.08-160 \\
& +0,-3
\end{aligned}
$$

\] \& | 8 |
| :--- |
| 10 |
| 10 |
| 7.5 | \& \[

$$
\begin{aligned}
& 0.008 \\
& 0.02 \\
& 0.04 \\
& 0.012
\end{aligned}
$$

\] \& | I/D |
| :--- |
| I/O |
| 0 | \& | Sel. |
| :--- |
| Sel. | \& 1 \& | 0 |
| :--- |
| 0 | \& | Sel. |
| :--- |
| Sel. | \& \[

$$
\begin{aligned}
& 5 \\
& 5
\end{aligned}
$$
\] \& 75

72
72 \& 72
70
70 \& 5950.00
2800.00
950.00

3700.00 \& | Microprocessor-controlied switching and volume; external power supply. |
| :--- |
| Microprocessor-controlled switching and volume; phono stage can be deleted. | <br>

\hline SIMA \& $$
\begin{aligned}
& \begin{array}{l}
\text { P-2001 MkII } \\
\text { P-3001 }
\end{array} \\
& \text { Celeste } \\
& \text { P-4001(RO) }
\end{aligned}
$$ \& S

$\mathbf{S}$

$\mathbf{S}$ \& | MM/MC/L MM/MC/L |
| :--- |
| MM/MC/L | \& | No No |
| :--- |
| No | \& \[

$$
\begin{aligned}
& 20-80+0,-3 \\
& 20-80+0,-3
\end{aligned}
$$
\]

$$
1-100
$$ \& \[

$$
\begin{aligned}
& 11 \\
& 7
\end{aligned}
$$
\]

$$
9.5
$$ \& \[

$$
\begin{aligned}
& 0.05 \\
& 0.05 \\
& \\
& 0.05
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 0 \\
& \dagger
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 200 \\
& 200 \\
& \\
& 200
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 2 \\
& 2 \\
& 2
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 0 \\
& 0 \\
& 0
\end{aligned}
$$

\] \& | SeI. |
| :--- |
| Sel. | \& \[

$$
\begin{aligned}
& 1 \\
& 1 \\
& 1
\end{aligned}
$$

\] \& | 80 |
| :--- |
| 81 |
| 81 | \& 67

70

70 \& \[
$$
\begin{array}{r}
695.00 \\
1850.00 \\
\\
1150.00
\end{array}
$$

\] \& | External power supply; no negative teedhack; d.c. coupled; phono input can be ordered as MM, MC, or high level. |
| :--- |
| No negative feedback: |
| d.c. coupled; phono stage optional. |
| †Optional balanced out. | <br>


\hline SONIC FRDNTIERS \& | SFL-1 |
| :--- |
| SFP-1 |
| SFL-1 |
| Signature SFP-1 |
| Signature SFL-2 | \& \[

$$
\begin{aligned}
& \mathrm{H} \\
& \mathrm{H} \\
& \mathrm{H} \\
& \mathrm{H} \\
& \mathrm{~T}
\end{aligned}
$$

\] \& | L |
| :--- |
| MM/MC |
| L |
| MM/MC |
| L | \& | No |
| :--- |
| No |
| No | \& \[

$$
\begin{aligned}
5-100 & \pm 0.5 \\
20-20 & \pm 0.3 \\
5-100 & \pm 0.5 \\
20-20 & \pm 0.3 \\
5-100 & \pm 3
\end{aligned}
$$

\] \& \[

$$
\begin{array}{|l|}
\hline 20 \\
1 \\
20 \\
1 \\
45
\end{array}
$$

\] \& | 0.08 |
| :--- |
| 0.05 |
| 0.08 |
| 0.05 |
| 0.075 | \& 1/0 \& \[

$$
\begin{aligned}
& 200 \\
& 200 \\
& 235
\end{aligned}
$$

\] \& \[

\left[$$
\begin{array}{l}
1 \\
1 \\
1
\end{array}
$$\right.

\] \& | 0 |
| :--- |
| 0 |
| 0 | \& | No |
| :--- |
| No |
| Sel. | \& | $7$ |
| :--- |
| 7 | \& \[

$$
\begin{aligned}
& 70 \\
& 70
\end{aligned}
$$
\] \& 65

65 \& $$
\begin{aligned}
& 1395.00 \\
& 1095.00 \\
& 1795.00 \\
& 1495.00 \\
& 3495.00
\end{aligned}
$$ \& External power supply; stepped attenuator; direct inputs. <br>

\hline SDNOGRAPHE \& SC22 \& S \& MM/L \& No \& \& 7.5 \& \& \& \& 2 \& 0 \& Yes \& \& \& \& 884.00 \& Without phono board, \$695.00. <br>
\hline SONY ES \& TA-E80ES(RI) TA-E2000ESD(RI) \& S

$\mathbf{S}$ \& MM/MC/L MM/ \& No Yes \& \[
$$
\begin{aligned}
& 3-300+0 .-3 \\
& 10-20 \pm 0.1
\end{aligned}
$$

\] \& 2.5 \& \[

$$
\begin{aligned}
& 0.001 \\
& 0.003
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \text { I/O } \\
& \text { No }
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 150 \\
& 250
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 4 \\
& 7
\end{aligned}
$$

\] \& \[

2

\] \& \[

$$
\begin{aligned}
& \text { No } \\
& \text { No }
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 2.5 \\
& 5
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 95 \\
& 84
\end{aligned}
$$

\] \& 83 \& \[

$$
\begin{array}{r}
930.00 \\
1250.00
\end{array}
$$
\] \& One coaxial and two optical inputs: digital Dolby Pro Logic; digital dynamic range compression/ expansion. †Parametric EO with 91 center frequencies. <br>

\hline SOUND ENGINEERING \& PFM-2B \& S \& Mm/L \& No \& $$
\begin{aligned}
& 0.2-100 \\
& +0 .-0.5
\end{aligned}
$$ \& 18 \& 0.001 \& 0 \& 300 \& 2 \& 0 \& Sel. \& 2.1 \& 92 \& \& 1750.00 \& <br>

\hline SOUNOSTREAM \& | C.2THX(RI) |
| :--- |
| SN.1MkII(RO) | \& S \& L

L \& \begin{tabular}{l}
No <br>
No

 \& $1-50 \pm 3$ \& 7 \& 0.05 \& 0 \& Var. \& 

$$
1
$$ <br>

1

\end{tabular} \& 1 \& \[

$$
\begin{aligned}
& \text { No } \\
& \text { No }
\end{aligned}
$$

\] \& \& \& \& \[

$$
\begin{aligned}
& 2795.00 \\
& 1195.00
\end{aligned}
$$
\] \& THX certified (see also "Surround Processors'): two S -video inputs; two-zone AV control optional. Four-zone AN control; includes infrared repeater. <br>

\hline SOUNOTECH \& Preamp One \& T \& MM/L \& \& 20-100 +0.3 \& 2 \& 0.1 \& \& 200 \& 1 \& 0 \& No \& 2 \& 66 \& \& 1299.00 \& Turn-on delay; buffered, unity-gain tape inputs. <br>

\hline SOUND VALUES \& $$
\begin{aligned}
& \text { OX-180(RO) } \\
& \text { SV-200 }
\end{aligned}
$$ \& $\stackrel{\text { S }}{\mathbf{S}}$ \& MM/HC/L MMA/L \& \[

$$
\begin{aligned}
& \text { No } \\
& \text { No }
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 20-20+0,-0.1 \\
& 20-20+0,-0.6
\end{aligned}
$$

\] \& \& \[

$$
\begin{aligned}
& 0.005 \\
& 0.005
\end{aligned}
$$

\] \& \& \& \& \[

$$
\begin{aligned}
& 0 \\
& 2
\end{aligned}
$$
\] \& \& \& 87

83 \& 80 \& $$
\begin{aligned}
& 399.00 \\
& 199.00
\end{aligned}
$$ \& Class A: with remote, \$549.00. Toroidal transtormer; multiple pre outs; tone defeat; active crossovers rack-mount version, $\$ 219.00$. <br>

\hline
\end{tabular}



因

## SONIC FRONTIERS <br> I $N \quad \mathrm{C} \quad \mathrm{C} \quad \mathrm{O} \quad \mathrm{R} \quad \mathrm{P} \quad \mathrm{O} \quad \mathrm{R} \quad \mathrm{A} \quad \mathrm{T} \quad \mathrm{E} \quad \mathrm{D}$

## PREAMPLIFIERS

\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline \multicolumn{5}{|l|}{} \&  \& 8 \&  \&  \&  \&  \& \& \& \& \[
5
\] \&  \&  \&  \&  \\
\hline SOUND VALVES \& VTP-100 \& T \& MM L \& No \& 20-20 +0.0.2 \& 12 \& 0.009 \& \& 50 \& \& 0 \& \& 10 \& 90 \& \& 595.00 \& \\
\hline SPECTRAL AUDIO \& DMC-20
Reference
DMC-12 \& S \& \begin{tabular}{l}
MM/MC/L \\
MM/MC/L
\end{tabular} \& \[
\begin{aligned}
\& \text { No } \\
\& \text { No }
\end{aligned}
\] \& \[
\begin{aligned}
\& 0-1 \mathrm{M} \pm 0.1 \\
\& 0-1 \mathrm{M} \pm 0.1
\end{aligned}
\] \& \[
\begin{aligned}
\& 80 \\
\& 40
\end{aligned}
\] \& \[
0.01
\] \& 10 \& \[
\begin{aligned}
\& 100 \\
\& 100
\end{aligned}
\] \& \& \& \[
\begin{array}{|l}
\text { Sel. } \\
\mathrm{No}
\end{array}
\] \& \[
\begin{aligned}
\& 1.5 \\
\& 1.5
\end{aligned}
\] \& \& \[
\begin{aligned}
\& 90 \\
\& 85
\end{aligned}
\] \& \[
\begin{aligned}
\& 7295.00 \\
\& 3695.00
\end{aligned}
\] \& External power supply; without 202 phono module, \(\$ 6695.00\). External power supply; without 120 phono module, \(\$ 3195.00\) \\
\hline SPECTRASCAN \& LCA-10 \& S \& MM MC/L \& \(\mathrm{N}_{0}\) \& 3-250 + 0,-3 \& 15 \& 0.05 \& No \& 100 \& 2 \& 0 \& No \& 1.0 \& 85 \& 78 \& 1969.00 \& Without MC input, \$1569.00. \\
\hline SPECTRUM ENERGETICS \& PPA-102 \& \& L \& \& 0-300 \& \& . 0001 \& \& \& 0 \& 0 \& No \& \& \& \& \& Passive. \\
\hline \[
\begin{aligned}
\& \text { SSI } \\
\& \text { SURHOUND } \\
\& \text { SOUND } \\
\& \hline
\end{aligned}
\] \& System 5000 \& S \& L \& Yes \& 20-22 \& 10 \& 0.05 \& 10 \& \& 1 \& 0 \& \& \& \& \& 449.00 \& Dolby Pro Logic decoding (see also "Surround Processors"). \\
\hline Stanton \& 310 B \& \& MM \& \& 20-20 \& 15 \& 0.05 \& \& \& \& \& \& 0.5 \& 74 \& \& 280.00 \& \\
\hline SUMIKO/ COPLAND \& CTA-301 \& T \& MM/L \& No \& 5-100 +0.-1 \& 50 \& 0.01 \& \& 170 \& 1 \& 0 \& Yes \& 2.0 \& 86 \& \& 1995.00 \& \\
\hline Sumo \& \begin{tabular}{l}
Diana \\
Athena II
\end{tabular} \& S \& \begin{tabular}{l}
MM/MC/ \\
MM/MC/L
\end{tabular} \& Opt. \& \[
20-20 \pm 0.1
\]
\[
20-20 \pm 0.1
\] \& 40
\[
20
\] \& \[
\begin{aligned}
\& 0.008 \\
\& 0.008
\end{aligned}
\] \& 0

+ \& \[
$$
\begin{aligned}
& 300 \\
& 300
\end{aligned}
$$

\] \& 3 \& 0 \& | No |
| :--- |
| No | \& 0.5 \& 85 \& 880 \& $\dagger$

+ 
+ \& | Balanced difterential, d.c.-coupled line stage; external power supply. $\dagger$ Line, $\$ 1399.00$; accepts one plugin module (phono, $\$ 150.00$, or D/A, $\$ 500.00$ ). |
| :--- |
| D. C.-coupled line stage. $\dagger$ Line, \$699.00; plug-in phono module, $\$ 150.00$; plug-in D/A module, $\$ 500.00$; optional balanced out, $\$ 200.00$ (not available with $D / A$ ). | <br>

\hline SUPERPHON \& SP-100 \& S \& L \& No \& 0-2M \& 1.5 \& . 0018 \& No \& \& 1 \& 0 \& No \& \& \& \& 299.95 \& Active butter; no gain stage. <br>

\hline SUTHERLAND \& $$
\begin{aligned}
& \mathrm{C}-1000(\mathrm{RI}) \\
& \mathrm{C}-1001
\end{aligned}
$$ \& S \& L \& \[

$$
\begin{aligned}
& \mathrm{N} 0 \\
& \mathrm{~N}_{0}
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 0-200 \pm 0.1 \\
& 0-200 \pm 0.1
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 20 \\
& 20
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 0.01 \\
& 0.01
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \text { IN } \\
& \text { No }
\end{aligned}
$$

\] \& \[

200
\] \& 1

1 \& 0 \& | Sei. |
| :--- |
| No | \& \& \& \& \[

$$
\begin{array}{|l|}
\hline 15,000 . \\
9500.00
\end{array}
$$

\] \& | External power supply; protected connector bay. |
| :--- |
| External power supply; stepped attentuator. | <br>

\hline
\end{tabular}

## lexicon

 ADCOM SONY. CARVER NAD
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Atlantic

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.. $\$ 669$
 AV 100w Center Channel Speake


PINNACLE
ADVENT

Karaoke Players. CD player, 18 dise/3
bit DLC \& plus flow
se/3 ma

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.$\$ 339$

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Advanced Cable Designs for the Serious Audiophile

With so many cables on the market, it's easy to get confused.
Monster's famous patented M Series ${ }^{*}$ cable technologies deliver the most advanced sonic cable performance available.
See for yourself.
Separate Bandwidth Balanced ${ }^{\oplus}$ multi-gauged conductors for high, low, and mid-frequencies. MicroFiber ${ }^{6}$ dielectrics and Time Correct ${ }^{\ominus}$ windings for greater clarity and dynamic range. Isotec ${ }^{\circledR}$ insulating jackets that isolate the conductors from outside vibration.
Combine our patented cable designs with the highest technology connector money can buy--Monster's Turbine Design ${ }^{\otimes}$ and you have a cable that's truly Monsterous.
Hear for yourself.
Deeper, tighter bass, increased dynamic range, precise imaging and greater"depth" transports you closer to the original performance.
Audition the Mıooo ${ }^{\text {M }} \mathrm{Mk} 3$ and the other M Series ${ }^{\text {® }}$ cables at your Monster Cable ${ }^{\circledR} \mathrm{M}$ Series dealer and let your ears be the judge.





Get ready for an audio experience that reaches far beyond the confines of your living room-whether you're in the movie mode, the music mode, or even the shopping mode. Introducing the RV-6030R. Our latest and greatest audio/video receiver.

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Superior Dolby Pro Logic ${ }^{\circ}$ performance, 75 watts per channel—left, right and center, and an AN Receiver product line that was awarded "Best Buy" status by the leading national consumer magazine. It all adds up to a component that'll knock your cubic zirconium-studded socks off.

So if you're shopping around and need a little more convincing, call (800) 962-3203 to find out how our RV-6030R with the Analog Devices Dolby Pro Logic ${ }^{\oplus}$ surround processor stacks up against the competition.


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In the world of high technology the term "envelope" is used to describe the performance limitations of the equipment. In the world of music and wonder, a diverse group of technically competent products from AudioQuest lets you expand the performance envelope of your audio or video system.
The common thread running through all the $A Q$ products is that they offer the most improvement for the least money. No system is so poor or so perfect that using AudioQuest products won't make a wonderful improvement. The only proof is in the products themselves - please put us to the ultimate test - listen and look for yourself.



## THE INS RND OUTS OF GREAT SOUND.

Suddenly the room is alive with the sound of music. But where are the speakers?

No, it's not your imagination. It's the ingenious way the Polk Architectural Built-ln Series fifs into your lifestyle and your room. The ABs are built right into the wall, with the simplest mounting system a do-it-yourselfer ever tackled.

But don't be fooled by their conspicuous absence. These are serious speakers or they wouldn't bear the name Polk. And like all Polks, their acoustic reputations defy their modest price.

The $A B$ Series features 8 models to fit almost any application or budget. They include speakers touting midbass drivers with diaphragms of trilaminate polymer and soff dome tweeters. Their sound is so impressive, they'll have the competition climbing walls.

Now, the M3 is the kind of speaker that likes to hang out, so to speak. Whether it be on a wall or in a nice cozy corner. Or sometimes, it stands unobtrusively on the floor or beside a good book on the shelf.

But no matter where you put it, its purpose is to serve up great sound. Its equally at home as a primary speaker, as a video surround speaker in a home theater center, or as a remote speaker. The M3s include a mounting bracket system that provides more position flexibility than a yogi, and they come in ebony or white.

As sturdy as it is sonically pleasing, the all-weather version of the M3 is immune to the elements and lets you take your love of music outside.

Now that you know the ins and outs of Polk speakers, you know that nothing can come between you and great sound.

Not even a wall.

## THE AB AND THE M3 SERIES FROM THE SPEAKER SPECIALISTS OF poluandio

## The CaT Has Met Its Match.



The Convergent Audio Technology (CAT) SL1 Signature preamplifer has been acclaimed by audio purists and music lovers around the world as the finest preamplifier available. In fact, the SL1 Signature set such a high standard, it created a problem. It was very difficult to find a worthy amplifier to mate with it. But now we're happy to report that problem has been solved. The new JL1 triode monoblock by designer Ken Stevens is the amplifier CAT lovers have been waiting for! It exhibits the type of innovative thinking and fanatical attention to detail for which CAT is farnous. Years of research, testing and listening have produced a power amplifier of incomparable performance. Match it with the SL1 Signature for a truly singular musical experience. Available for audition at selected audio dealers worldwide.

## RECEIVERS



CD PR AMERS


## YAMAHA coc. 63

- 5 Disc Carousel CD Changer•3 Beam Pickup - 20 Track Programming
Direct Track Access
- Remote Contro
M.S.R.P................. KENWOOD DPM-7750 COUNTERPOINT DA10 DENON DCM-440 DENON DCD- 1290 FISHER DAC-2403 HARMAN KARDON HD. 7600 JVC XLM-408 NAD 502 ONKYO DX. 788 F
ONKYO DX-C206
ONKYO DX-C606
ONKYO DX-C909
PHILIPS CDC-935
YAMAHA CDC-735 Yama



## CARV ER TFM-35

- 250 Watts Per Channel Power Amplifier - 2 Channels - Solid State Design
- Fully Regulated High Current High Voltage Power Supply - Amplifier And Speaker Overload



## CELESTION TRANTY

- 3 Pc. Subwoofer/Satellite System • Dual Cavity Vented Design - 8" Woofer • Bass Reflex Design M.S.R.P................ 458


## SYSTE

 ADVENT MINI \& SUB ATLANTIC TECANOLOGY 150 ....3 Home Theatre System CAAl ATLANTIC TECHMOLOGY 200 .... Pro Logic Satellite....... 799 BOSE AM-5 SERIES ii .......... 3 Pc Acoustimass System 749 BOSE AM-7 DESIGN ACOUSTICS PS-3.... 3 Pc Satelite System,....... 299 POLKAUDIO RM-20OO POLK AUDIO RM-2000.
POIK AUDIO RM- 3000
YAMAHA NSA-325 \& YSISW 100
5 Disc Carousel Changer ... 299 $6+1$ CD Changer Remote 279 D/A Converter .........IN STOCK 5 Disc Carousel Changer CALL 20 Bit Remote Player..... CALL 24 CD Changer Remote ... 299 il BEST BUY! ............. 449 6 Disc Changer Changer CALL 5 Disc Carousel Changer...289 Dual 1 Bit DAC ................. 799 6 Disc Carousel Changer .. 249 6 Disc Carousel Changer .. 349 6 DiscCarousel Changer ... 479 5 Disc Carousel Changer .. 279 5 Disc Carousel Changer. 349 5 Disc Carousel Changer. . 439

1 NSA-325 \& YST SW 100 ...... 3 Pc Saxtellito Systom

## RHC <br>  <br> TX-SV717PRO

315 Watt AN Dolby Pro Logic - 5 Channels Hall \& Matrix Surround Modes • Programmable Remote - Sleep Timer M.S.R.P

CARVER HR $732 \ldots . . . . . . . . . .120$ Watt Remote Receiver ... 349 CARVER HR 895 ............... 365 Watt AN Receiver ......... 849 DENON AVR-2000 DENON AVR- 1000 DENON DRA.545R
JVC RX-800VTN
KENWOOD KRV-8050
NAD 705.
ONKYO TX-SV313 PRO
ONKYO TX-SV515 PRO
ONKYO TX-SV900 PRO
PHILIPS FR- 940
SHERWOOD RV.6010R
YAMAHA RXV-470
YAMAHA RXV-870
YAMAHA RXV-1070 5 Channel Dolby Pro Logic BEST 5 Channel Dolby Pro Logic PRICE 240 Watt Remote Receiver PLUS Remote Receiver -............ CALL 100 Watt Receiver Remote ... 349 Pro Logic Receiver Pro Logic Receiver 240 Watt AV Receiver Pro Logic Top Rated Pro Logic Remote Receiver RXV-1070 ......... Pro Logic Remote Receiver ... 949


HARMAN KARDON TD-4800

- Dolby S Top of the Line Tape Deck
- Dolby ${ }^{0+}$ B 8 HX Pro Noise Reduction - Ultrawide Frequency Response - Linear Time Counter
- Intro Scan - 3 Head
- Remote Control
M.S.R.P. ................ $\$ 199$
\$599
AIWA ADF-810 . Top Hee Head
AIWA XK 59000
Top Rated Three Head
CARVER TDR-1550 … Dolbye. BCNR \& HX PRO DENON DRM-710 DENON DRW- 840 3 Head Deck
JVC TDW805
MAD 6100
PHIL IPS FC-910 Double Deck

OWKYO TARW414 Dolby BC NR Deck

TEAC W-6000R Double Deck B,C \& HX PRO YAMAHA KKW. 262 Double Deck B.C \& HX PRO ..... B.C \& HX PRO Dual Deck Dual Deck Dolby BC HX PRO... 57

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ACOUSTIC RESEARCH M. 2 Way Audioohile Bookshe! ACOUSTIC RESEARCH M-6..FFoorstanding ................CALL ADVENT BABY II ................ 2 Way Bookshelf
ALLISON AL-115.............. 100 Watt Bookshelf ALLISON AL-120 …......TOP RATED Floorslanding. 399 BOSE 10.2 SERIES ii ........... 180 Watt Floorstanding ... 799
BOSE MODEL 21 CELESTIO MODĖ 3 ...... 2 Way Bookshelf. JBL 2500 ...................100 Watt 2 Way Bookshelf............. 249 JBL LX-500.......... 100 of Line Black Lacquer Finish CALL JENSEN 3100........................ Wati 3 Watt Floorstanding CALL KEF O-80 ................................igh End Floorstanding.....599 NHT HOP1............ HOME THEATRE SPEAKER .... CAL POLK AUDIO LSS-50........... 3 Way Floorstanding ............ 549

11. M-1 100 WATT 2-WAY BOOKSHELF SPEAKERS verngr - Acoustic-Suspension • 6" Woofer • 3/4" Tweeter

## 11 MC-1 CENTER CHANNEL PRO-LOGIC SPEAKER

## - 3/4" Tweeter • $4^{1 / 2^{\prime \prime}}$ Woofer • Passive Radiators

## HM-5 3-WAY FLOOR STANDING SPEAKERS (5) • " Midrange • 3/4" Aluminum Dome Tweeter PHILIPS CDC-935 5-DISC CD CHANGER - Dual 1-Bit DAC•Remote • 20-Track Program AIWA ADF810 3 HEAD TAPE DECK - Dolby ${ }^{0+}$ B\&C NR HX Pro - Tape-Stabilizing Mechanism PHILIPSFR-940 240 W PRO LOGIC RECEIVER

 - Digital Inputs \& Outputs • Direct Station Access
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\$1399 valls 489
$C A L L$ WA NSX-3500 ENON D-80 VC MX-C5 ENWOOD 10351 M
ENWOOD $10-500 \mathrm{~N}$
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## VELODYNE

F-1000

- 80 Watt Subwoofer M.S. …….... 889 DESIGN ACOUSTICS PS-SW PRICES EACH CELESTION CS-135 Subwooler ............ 229 J8L POWERED Subwoofer ............ IM STOCK
MUSEATEX SW12 NHT SW2P.... Powered Subwooler ..................CALL VELODYNE UD12 Sub wooler ............. CALL


HS-U56P

- 4 Head HI FI Stereo VHS Recorder - On Screen Programming • Jog Shuttle Remote
Control
M.S.R.P
. $\$ 595 *+0$ MITSUBISHI HSU-59 4 Head Hi-Fi SHARP VCH-870U.... 4 Head Hi-Fi... 249 TOSHIBA M-758. 4 Head Hi - Fi



THORENS
TD-180

- 3 Speod • $33^{1 / 3}, 45,78$ Speeds - Belt Drive System - Pinoted-To-Stylus Distance $9^{1 / 2} \cdot$ Auto Cue $\$ 310$ M.S.R.P....... $\$ 400$ DUAL CS-431 JVC ALA-15
THORENS TD-200
FULL UNE OF CARTRIDGES IN STOCK


## 1130 $\because 5015+535$

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ETC_

HIF END CAP STERZO SPEOLALISIS


MB QUART ourisc

- 80 Watt Universal 2-Way Component System - Two $6^{1 / 24}$ Woofers
- Two 34 "Tweeters \$ 28 M.S.R.P.

ADS PQ 202........... 340 Watt Power Amp ....... 549 ADS 3201S...........2-Way Component System .. 399 AUDO EOX
CONTROL EPICENTER 13 Band Eq Wih Crossover 259 BEL 645STI Laser Radar Detector CALI BLAUPUMKT BMA5350B 5 Ch 350 WaH AMMP479 BLAUPUNKT CDCACQ .... 10 CD Changer ......... 298


TOSH1BA Tx-103
Detachable Face AM/FM
Cassette - 18 AM/FM Presets -25W X 2 Channel Max - Auto Memory - Automatic Stop

BLAUPUNKT Z16930VC ... $6 \times 9$ Speake BLAUPUNKT ZL6530VC .... $6 / 2$ Speake BLAUPUNKT ASPEN... AMFM CD Phyer CEESTION AD12..... 12 SUbFooter 300 WAII ..... 18 CODE EARM $10055^{10}$ SUbwootw ................... 9 181 1500 GTI 105 x ..... Securty Sysiem ......... 80

## KENWOOD KDC-7000

- Detachable Face AM/FM

CD Player • 1 Bit DAC

- Scan• Search
- Seek• Presets M.S.R.P.
$1470-3.9$
JBL GTז22 ……... $2 \times 200 \mathrm{~W}$ Powe Amp ....... 399 KENWOOD KRC. 560 AMFM D................ ${ }^{99}$ KENW000 KRC-60 -..-AMIFM Vrachate 249 KENWO00 KRC-680 --_AMFM Detachable 299 KENWOOD KOC-7000 AM/FM Detachable CD 329
KENWOOD KOC 301 10 CO Oranor KC1ER KDC601 10 CO Cranoar.................... 33


ADS PH 15.2
6 Channel - 330 Watt Power
Amplifier

- High Current
High Power $\$ 529$

MB QUART QM-214 4 zWa Component System 199 M8 OUART OM-160KX Coanad MB QUART QM-2150X Way Speaker System -...... 269 ORION XTR-12...... 12 Subwooter 800 Watts 99 POLK AUDD MM3065 62" Way ComponenLSy 219 WHISTLER 1170 Tir-Band Radar W/ Laser ........ 199

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| AURA | Aura Mkll | B |  |  | Belt |  | 10 | Yes | No |  |  |  |  |  |  |  |  | $24 \times 81 / 2 \times 16$ | 3950.00 |
| BANG \& OLUFSEN | Beogram 4500 Beogram 7000 Beogram 9500 | $\begin{gathered} \mathrm{B} \\ \mathrm{~B} \\ \mathrm{~B} \end{gathered}$ | $\begin{aligned} & 0.06 \\ & 0.06 \\ & 0.06 \end{aligned}$ | $80$ $80$ $80$ | Belt <br> Belt <br> Belt | $\begin{aligned} & 0.2 \\ & 0.2 \\ & 0.2 \end{aligned}$ |  | No Yes No | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \text { No } \end{aligned}$ | LS <br> L/S <br> L/S | $\begin{aligned} & 43 / 4 \\ & 43 / 4 \\ & 43 / 4 \end{aligned}$ | $\begin{aligned} & C / R \\ & C / R \\ & C / R \end{aligned}$ | $\begin{aligned} & 1.0-1.5 \\ & 1.0-1.5 \\ & 1.0-1.5 \end{aligned}$ | No <br> No <br> No | $\begin{aligned} & 1.6 \\ & 1.6 \\ & 1.6 \end{aligned}$ | $\begin{aligned} & 240 \\ & 240 \\ & 240 \end{aligned}$ | $\begin{aligned} & F \\ & F \\ & F \end{aligned}$ | $\begin{aligned} & 161 / 2 \times 3 \times 12^{3 / 4} \\ & 161 / 2 \times 3 \times 12^{3 / 4} \\ & 161 / 2 \times 3 \times 12^{3 / 4} \end{aligned}$ | 650.00 <br> 650.00 <br> 650.00 |
| bASIS AUDID | Debut Gold Standard Ovation Debut Gold Vacuum | $\begin{aligned} & \hline B \\ & B \\ & B \end{aligned}$ | $\begin{aligned} & 0.02 \\ & 0.02 \\ & 0.02 \end{aligned}$ | $\begin{aligned} & 90 \\ & 90 \\ & 90 \end{aligned}$ | Belt <br> Belt Belt | $\begin{aligned} & 0.02 \\ & 0.02 \\ & 0.02 \end{aligned}$ |  |  |  |  |  |  |  |  |  |  |  | $\begin{aligned} & 23 \times 161 / 2 \times 71 / 4 \\ & 23 \times 161 / 2 \times 51 / 2 \\ & 23 \times 161 / 2 \times 71 / 4 \end{aligned}$ | $\begin{aligned} & 6900.00 \\ & 4395.00 \\ & 8900.00 \end{aligned}$ |
| denon | $\begin{aligned} & \text { DP-59L } \\ & \text { DP-47F } \\ & \text { DP-23F } \\ & \text { DP-7F } \end{aligned}$ | $\begin{aligned} & \text { B } \\ & \text { B } \\ & \text { B } \\ & \text { B } \end{aligned}$ | $\begin{aligned} & 0.006 \\ & 0.01 \\ & 0.02 \\ & 0.018 \end{aligned}$ | $\begin{aligned} & 82 \\ & 78 \\ & 75 \\ & 75 \end{aligned}$ | Direct <br> Direct <br> Direct <br> Direct | $\begin{aligned} & 0.002 \\ & 0.002 \\ & 0.002 \\ & 0.01 \end{aligned}$ | 9.9 | No <br> Yes <br> Yes <br> Yes | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{aligned} & \mathrm{P} / \mathrm{s} \\ & \mathrm{P} / \mathrm{S} \\ & \mathrm{P} / \mathrm{S} \\ & \mathrm{P} / \mathrm{S} \end{aligned}$ | $\begin{aligned} & 9.6 \\ & 8.7 \\ & 8.7 \\ & 8.7 \end{aligned}$ | C/R C/F C/F | $\begin{aligned} & 0-3 \\ & 0-3 \\ & 0-3 \\ & 1.25 \end{aligned}$ | Yes <br> Yes <br> Yes <br> Yes | $\begin{aligned} & 3-14 \\ & 3-12 \\ & 4-9 \\ & 6 \end{aligned}$ |  | W R $R$ $R$ $P$ | $\begin{aligned} & 191 / 4 \times 85 / 8 \times 161 / 8 \\ & 17 \times 16 \times 1 / 8 \\ & 17 \times 41 / 8 \times 141 / 8 \\ & 143 / 8 \times 33 / 4 \times 141 / 8 \end{aligned}$ | $\begin{aligned} & 750.00 \\ & 500.00 \\ & 325.00 \\ & 250.00 \end{aligned}$ |
| dual | $\begin{aligned} & \text { Golden-1 } \\ & \text { CS-750 } \\ & \text { CS-505-4 } \\ & \text { CS-450 } \\ & \text { CS-431 } \end{aligned}$ | $\begin{aligned} & \text { C } \\ & \text { C } \\ & \text { B } \\ & \text { B } \\ & \text { B } \end{aligned}$ | $\begin{aligned} & 0.023 \\ & 0.023 \\ & 0.06 \\ & 0.07 \\ & 0.08 \end{aligned}$ | $\begin{aligned} & 80 \\ & 80 \\ & 75 \\ & 70 \\ & 70 \end{aligned}$ | Belt Belt Belt Belt Belt |  |  | No <br> No <br> No <br> No <br> No | $\begin{array}{\|l} \mathrm{No} \\ \mathrm{No} \\ \mathrm{No} \\ \mathrm{No} \\ \mathrm{No} \end{array}$ | $\begin{aligned} & P \\ & P \\ & P \\ & P \\ & P \end{aligned}$ |  | $\begin{aligned} & \mathrm{C} \\ & \mathrm{C} \\ & \mathrm{C} \\ & \mathrm{C} \end{aligned}$ | $\begin{aligned} & 0.3-10 \\ & 1-4 \\ & 1-4 \\ & 1-4 \end{aligned}$ | Yes <br> Yes <br> Yes <br> Yes <br> Yes | $\begin{aligned} & 3-12 \\ & 3-13 \\ & 3-10 \\ & 3-10 \\ & 3-10 \end{aligned}$ | $\begin{aligned} & 150 \\ & 130 \\ & 150 \\ & 150 \\ & 150 \end{aligned}$ | $\begin{aligned} & \mathbf{R} \\ & \mathbf{R} \\ & \mathbf{R} \\ & \mathbf{R} \\ & \mathbf{R} \end{aligned}$ | $17^{1 / 4} \times 51 / 2 \times 15$ <br> $171 / 4 \times 51 / 2 \times 15$ <br> $171 / 4 \times 51 / 2 \times 141 / 2$ <br> $171 / 4 \times 51 / 2 \times 141 / 2$ <br> $171 / 4 \times 51 / 2 \times 141 / 2$ | $\begin{array}{r} 1195.00 \\ 750.00 \\ 520.00 \\ 375.00 \\ 270.00 \end{array}$ |
| Elite | PL-90 |  | 0.018 wrms | 85 | Oirect |  |  |  |  | P | 111/8 |  |  |  |  |  |  | $231 / 2 \times 81 / 2 \times 171 / 8$ | 950.00 |
| ESDTERIC SOUMD | RA-6 <br> (w/Cartridge) <br> Vintage <br> V-2 <br> Isis <br> Ramses <br> (w/Cartridge) <br> V-3 <br> BES <br> Dsiris | C C C D C C C C | 0.045 <br> 0.045 <br> 0.025 <br> 0.025 <br> 0.025 <br> 0.025 <br> 0.1 <br> 0.04 | 70 70 75 75 75 72 65 80 | Direct <br> Belt Direct Direct Belt Direct Belt Belt | 0.02 <br> 0.02 <br> 0.01 <br> 0.01 <br> 0.02 <br> 0.01 <br> 0.02 <br> 0.01 | $\begin{array}{\|l\|} 7 \\ 6 \\ 6 \\ 8 \\ 45 \\ 8 \\ 8 \\ 0 \\ 7 \end{array}$ | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { No } \\ & \\ & \text { No } \\ & \text { No } \\ & \text { No } \end{aligned}$ | No No No No No No No No No | $\begin{aligned} & P \\ & P \\ & P \\ & P \\ & P \\ & P \\ & P \\ & P \end{aligned}$ | $81 / 4$ $91 / 4$ $81 / 4$ $81 / 4$ $91 / 4$ $91 / 4$ 9 9 | $R$ $R$ $C$ $C$ $C$ $C$ $C$ $C$ | $2-5$ $1.25-3.5$ $2-5$ $2-5$ $1.25-5$ $1.25-5$ $1.25-5$ $1.25-5$ | $\begin{aligned} & \text { Yes } \\ & \text { No } \\ & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \\ & \\ & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & 2-10 \\ & 6 \\ & 2-10 \\ & 2-10 \\ & 2-10 \\ & 2-10 \\ & 2-10 \\ & 2-10 \end{aligned}$ | $\begin{aligned} & \hline 250 \\ & 250 \\ & 200 \\ & 200 \\ & 200 \\ & 200 \\ & 180 \\ & 180 \end{aligned}$ | $\begin{aligned} & R \\ & R \\ & \mathbf{R} \\ & \mathbf{R} \\ & \mathbf{R} \\ & \mathbf{R} \\ & \\ & \mathbf{R} \\ & \mathbf{R} \\ & \mathbf{R} \end{aligned}$ | $161 / 2 \times 133 / 4 \times 41 / 2$ <br> $17 \times 141 / 2 \times 31 / 2$ $16^{1 / 2} \times 133 / 4 \times 41 / 2$ $16^{1 / 2} \times 13^{3 / 4} \times 41 / 2$ $17^{3} / 4 \times 131 / 2 \times 6$ <br> $173 / 4 \times 131 / 2 \times 6$ $181 / 4 \times 141 / 4 \times 61 / 4$ $201 / 4 \times 161 / 2 \times 71 / 2$ | $\begin{array}{r} 225.00 \\ 265.00 \\ 375.00 \\ 420.00 \\ 425.00 \\ 495.00 \\ 665.00 \\ 1225.00 \end{array}$ |
| GEMINI SOUND PRODUCTS | $\begin{aligned} & \text { XL-BD10 } \\ & \text { XL-DD20 } \\ & \text { XL-BD40 } \\ & \text { XL-DD50\\| } \\ & \text { XL-18000II } \end{aligned}$ | $\begin{aligned} & B \\ & B \\ & B \\ & B \\ & B \end{aligned}$ | $\begin{aligned} & 0.25 \\ & 0.2 \\ & 0.15 \\ & 0.15 \end{aligned}$ | $\begin{aligned} & 50 \\ & 50 \end{aligned}$ | Belt <br> Direct Belt Direct Direct |  | $\begin{aligned} & 6 \\ & 8 \\ & 8 \\ & 8 \\ & 8 \end{aligned}$ | No No No No No | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { No } \end{aligned}$ | P |  | $\begin{array}{\|l} \mathrm{R} \\ \mathrm{R} \\ \mathrm{R} \\ \hline \end{array}$ | $\begin{aligned} & 1.5 \\ & 1.5 \end{aligned}$ | Yes Yes Yes Yes Yes |  |  | $\begin{aligned} & R \\ & R \\ & R \\ & R \\ & R \end{aligned}$ | $\begin{aligned} & 161 / 2 \times 141 / 2 \times 41 / 2 \times 1 / 2 \times 1 / 21 / 2 \times 41 / 2 \\ & 161 / 2 \times 141 / 2 \times 41 / 2 \times 6 \\ & 171 / 2 \times 141 / 2 \times 6 \\ & 171 / 2 \times 141 / 2 \times 6 \\ & 171 / 2 \times 141 / 2 \times 6 \end{aligned}$ | $\begin{aligned} & 180.00 \\ & 275.00 \\ & 300.00 \\ & 380.00 \\ & 480.00 \end{aligned}$ |
| JVC | ALA155TN ALA151BK | $\begin{aligned} & \mathbf{B} \\ & \mathbf{B} \end{aligned}$ | $\begin{aligned} & 0.04 \\ & 0.04 \end{aligned}$ |  | Belt Belt |  |  | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ | P/S P/S |  | C/R | $\begin{aligned} & 1.25 \\ & 1.25 \end{aligned}$ |  |  |  | $\begin{aligned} & p \\ & p \end{aligned}$ | $\begin{aligned} & 41 / 8 \times 171 / 2 \times 14^{1 / 2} \\ & 41 / 8 \times 171 / 2 \times 14^{1 / 2} \end{aligned}$ | $\begin{aligned} & 100.00 \\ & 100.00 \end{aligned}$ |
| KENWOOD | $\begin{aligned} & \text { KD-491FC } \\ & \text { KD-291FC } \\ & \text { P-100 } \end{aligned}$ | $\begin{aligned} & \mathbf{B} \\ & \mathbf{B} \end{aligned}$ | 0.05 | $\begin{aligned} & 68 \\ & 68 \end{aligned}$ | Belt <br> Belt |  |  | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & 1 \\ & 1 \end{aligned}$ |  | $\begin{aligned} & 8^{3 / 4} \\ & 8^{3 / 4} \end{aligned}$ | $\underset{R}{C / R}$ |  | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ |  |  | F | $17^{3 / 8} \times 41 / 4 \times 15^{3 / 8}$ <br> $73 / 8 \times 41 / 4 \times 153 / 8$ | $\begin{array}{r} 129.00 \\ 79.00 \\ 119.00 \end{array}$ |
| LINN | LP12/Lingo <br> LP12 <br> Valhalla <br> LP12/Basik <br> Axis <br> Basik | $\begin{aligned} & \text { B } \\ & \text { A } \\ & \text { A } \\ & \text { B } \end{aligned}$ |  |  | Belt Belt <br> Belt Belt Belt | $\begin{aligned} & 0.01 \\ & 0.03 \\ & \\ & 0.1 \\ & 0.1 \\ & 0.1 \end{aligned}$ |  | No <br> No <br> No <br> No <br> Yes | No No No No No | P | $\begin{aligned} & 83 / 2 \\ & 83 / 2 \end{aligned}$ |  | $\begin{aligned} & 0-3 \\ & 0.3 \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & 2-10 \\ & 2-10 \end{aligned}$ | 100 | $\begin{aligned} & \mathbf{F} \\ & \mathbf{F} \end{aligned}$ | $\begin{aligned} & 171 / 2 \times 14 \times 51 / 2 \\ & 171 / 2 \times 14 \times 51 / 2 \\ & 171 / 2 \times 14 \times 51 / 2 \\ & 171 / 2 \times 133 \times 51 / 2 \\ & 17^{3 / 4} \times 14 \times 51 / 2 \end{aligned}$ | $\begin{array}{r} 2645.00 \\ 1745.00 \\ \\ 1395.00 \\ 1195.00 \\ 595.00 \end{array}$ |
| MERRILL AUOIO | Heirloom | A | 0.02 | 100 | Belt | 0.01 |  | Yes |  |  |  |  |  |  |  |  |  | $19 \times 15 \times 8$ | 3800.00 |
| J. A. Michell | Syncro MklII <br> Mycro <br> Gyrodec <br> MkIII <br> Gyrodec <br> MkIII LE | $\begin{aligned} & \hline \text { B } \\ & \text { B } \\ & \text { B } \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.05 \\ & 0.05 \\ & 0.05 \\ & 0.05 \end{aligned}$ | $\begin{aligned} & 77 \\ & 77 \\ & 80 \\ & 80 \end{aligned}$ | Belt <br> Belt <br> Belt <br> Belt | $\begin{aligned} & 0.22 \\ & 0.22 \\ & 0.01 \\ & 0.01 \end{aligned}$ |  | No No No No | No No No No | $\begin{aligned} & \mathbf{P} \\ & \mathbf{P} \end{aligned}$ |  |  |  | Yes Yes |  |  | $\begin{aligned} & F \\ & F \end{aligned}$ | $\begin{aligned} & 18 \times 5 \times 13 \\ & 18 \times 5 \times 13 \\ & 20 \times 6 \times 16 \\ & 20 \times 6 \times 16 \end{aligned}$ | $\begin{aligned} & 1350.00 \\ & 1450.00 \\ & 1795.00 \\ & 1995.00 \end{aligned}$ |
| NUMARK | TT1500 | B | 0.055 | 90 | Direct |  | 8 | Yes | No | P | 83/4 |  | 0-3 | Yes | 5-8 |  | R | $163 / 8 \times 141 / 4 \times 51 / 4$ | 349.00 |
| OPTIMUS | $\begin{aligned} & \text { LAB-2250 } \\ & \angle A B-340 \end{aligned}$ | $\begin{aligned} & B \\ & B \end{aligned}$ | $\begin{aligned} & 0.10 \\ & 0.15 \end{aligned}$ | $\begin{aligned} & 55 \\ & 45 \end{aligned}$ | Belt Belt |  |  | Yes No | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{aligned} & \text { L/S } \\ & \text { P/S } \end{aligned}$ |  | $\begin{array}{\|l\|} \hline \mathbf{R} \\ \hline \end{array}$ | $\begin{aligned} & 2.3 \\ & 2.5 \end{aligned}$ | Yes Yes |  |  | $\begin{aligned} & \text { R } \\ & \text { F } \end{aligned}$ | $\begin{aligned} & 3^{3 / 4} \times 141 / 4 \times 13^{3 / 4} \\ & 4 \times 13^{7 / 8} \times 13^{7 / 8} \end{aligned}$ | $\begin{aligned} & 100.00 \\ & 150.00 \end{aligned}$ |
| oracle audio | Paris MKIV Alexandria MKIV <br> Delphi MKIV <br> Premiere MKIV | $\begin{aligned} & \mathrm{B} \\ & \mathrm{~B} \\ & \mathrm{~B} \\ & \mathrm{~B} \end{aligned}$ |  |  | Belt Belt <br> Belt <br> Belt |  | 5 <br> 5 <br> 5 | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { Yes } \end{aligned}$ |  |  |  |  |  |  |  |  |  | $\begin{aligned} & 19 \times 15 \times 51 / 2 \\ & 19 \times 15 \times 61 / 2 \\ & 19 \times 141 / 2 \\ & 20 \times 15 \end{aligned}$ | $\begin{array}{r} 995.00 \\ 1595.00 \\ \text { From } \\ 2650.00 \\ \text { From } \\ 3995.00 \end{array}$ |
| PInK triangle | Anniversary <br> Export <br> LPT | $\begin{aligned} & \text { B } \\ & \text { B } \\ & \text { B } \end{aligned}$ | $\begin{aligned} & 0.05 \\ & 0.05 \\ & 0.05 \end{aligned}$ | $\begin{aligned} & 80 \\ & 72 \\ & 72 \end{aligned}$ | Belt Belt Belt | $\begin{aligned} & 0.05 \\ & 0.05 \\ & 0.3 \end{aligned}$ | $\begin{array}{r} 5 \\ 5 \end{array}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \text { No } \end{aligned}$ | $\dagger$ |  |  |  |  |  |  |  | $\begin{aligned} & 17^{3 / 4} \times 151 / 2 \times 61 / 2 \\ & 173 \times 151 / 2 \times 61 / 2 \\ & 173 / 4 \times 141 / 2 \times 61 / 4 \end{aligned}$ | $\begin{array}{r} 3995.00 \\ 1895.00 \\ 1195.00 \\ \text { tMoth/ } \\ \text { Rega } \end{array}$ |
| PIONEER | $\begin{aligned} & \text { PL-600/KUC } \\ & \text { PL-203AZ } \end{aligned}$ |  |  |  | Belt Belt |  |  |  |  | $\begin{aligned} & \mathbf{P} \\ & \mathbf{P} \end{aligned}$ |  | ${ }_{\mathrm{R}}^{\mathrm{C} / \mathrm{R}}$ |  |  |  |  |  | $\begin{aligned} & 165 / 8 \times 33 / 4 \times 14 \\ & 191 / 4 \times 51 / 2 \times 161 / 2 \end{aligned}$ | $\begin{aligned} & 145.00 \\ & 100.00 \end{aligned}$ |
| REGA RESEARCH <br> (Continued) | Planar 3 w/RB300 Arm Planar 2 w/RB250 Arm | B <br> B |  |  | Belt <br> Belt |  |  |  |  | $\begin{aligned} & P \\ & P \end{aligned}$ |  |  |  |  |  |  | $f$ <br> F |  | 775.00 575.00 |



# High Technology. Low Prices. 

We at VMPS are committed to producing state-of-the-art speaker systems at a fraction the cost of other name brands.


The VMPS Dipole Surround: bipolar radiation, great imaging

Our two newest models maintain this 17-year tradition. The VMPS Dipole Surround (\$349ea) is designed for side channel operation in high quality home theater installations. Features include front-and-rear firing $61 / 2^{\prime \prime}$ butyl surround polycone woofers (with phase plugs) and 1' softdome tweeters in a sealed enclosure only $16 \times 10 \times 9^{\prime \prime}$. Bass response is flat to 48 Hz ( -3 dB ), sensitivity high ( $92 \mathrm{~dB} / 1 \mathrm{~W} / 1 \mathrm{~m}$ ), imaging spectacular and front-to-back depth amazing for such a small speaker. Audiophiles fond of their expensive imported mini-monitors should discover the Dipole Surround, one of the bestsounding compact speakers available regardless of price.

At the other end of the scale, there are few larger ( $68 \times 14 \times 18^{\prime \prime}$ ) or heavier ( 350 lbs .!) floor-standing full-range systems than the VMPS FF-1 Focused Field Array, currently the only fully symmetrical vertically focused widerange monitor in commercial production. No system known to us generates so much firstoctave output ( $-3 \mathrm{~dB} / 14 \mathrm{~Hz}$ ) at vanishingly low THD (no more than $0.4 \% / 1 \mathrm{~W}$ drive), and even the most exotic ribbon/planar designs can't match the FF-1's silky trebles and 45 kHz cutoff ( -3 dB ). A $3^{\prime \prime}$ thick MDF front baffle, radiused hardwood corners, and $\mathrm{Z}^{\prime \prime}$ MDF side/back baffles, plus Soundcoat and extensive bracing, virtually eliminate the cabinet as a secondary sound source. The system's unique slot-loading mask defeats treble diffraction effects. The wave-
form launch from our handbuilt carbon filled polypropylene woofers (with $3^{\prime \prime}$ phase plugs) and woven carbon fiber $5^{\prime \prime}$ mids ( $11 / 2^{\prime \prime}$ phase plugs) is much more coherent than that from conventional dust-capped drivers. Crossovers boast such luxury parts as MIT Multicaps, IAR Wondercaps, and Perfect Lay coils mounted in discrete outboard enclosures. At $\$ 6800 / \mathrm{pr}$ for light and dark oak, or $\$ 7200 /$ pr for piano black, dark cherry, or walnut, the FF-1's set a new price/ performance standard.


The Larger VMPS Subwoofer: one of four starting at $\$ 289$
Adding thunder to your high-end music or A/V home theater system? The Larger VMPS Subwoofer ( $\$ 529$ ea kit, \$649ea assem) is simply the lowest-distortion ( $0.5 \% / 1 \mathrm{~W}$ ), widest bandwidth ( $-3 \mathrm{~dB} / 17 \mathrm{~Hz}$ ), highest output (120dB $\mathrm{SPL}+/ 1 \mathrm{~m}$ ) home bass module in existence. Our Passive Crossover ( $\$ 35 \mathrm{kit}$, $\$ 45$ assem) permits operation from your existing main amplifier. Completely lacking from this 150 lb ., dual $15^{\prime \prime}$ and $12^{\prime \prime}$ true Subwoofer are the cardboard enclosures, flailing small drivers, chuffing vent noise, midfi power amps, equalization boost and output limiters found even in some very expensive competitors.

Hear VMPS at the dealers listed below, or write for brochures and test reports on all 13 models. Listed prices including free shipping in 48 states; kits are supplied with fully assembled cabinets.

## VMPS AUDIO PRODUCTS div. Itone Audio

3429 Morningside Dr. El Sobrante, CA 94803 (510) 222-4276 Fax: (510) 232-3837

[^6]

## TONEARMS

| MANUFACTURER <br> AIRTANGENT |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  |  |  | Yes |  | Yes |  |  |  |  |  |  | 1/2 | 12,900. | Remote cueing and VTA. |
| Audio note | $\begin{aligned} & A N-0 / \mathbf{s} \\ & A N-1 / s \end{aligned}$ | P | $\underset{F}{F}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & 10 \\ & 10 \end{aligned}$ |  |  | $\begin{aligned} & 0.5-5.0 \\ & 0.5-5.0 \end{aligned}$ | $\begin{aligned} & 5-20 \\ & 5-20 \end{aligned}$ |  |  | $\begin{aligned} & 1495.00 \\ & 2295.00 \end{aligned}$ | Bimetallic sell-damping armube. |
| AUdioduest | AD PT- 6 AO PT-7 AO PT-8 | P $\mathbf{p}$ $\mathbf{p}$ | F | Yes Yes Yes | Yes Yes Yes | Yes Yes Yes | 9 9 9 | $\begin{aligned} & 12 \\ & 12 \\ & 12 \end{aligned}$ |  | (1) $\begin{aligned} & 0-3 \\ & 0-3 \\ & 0-3\end{aligned}$ | $\begin{aligned} & 3-12 \\ & 3-12 \\ & 3-12 \end{aligned}$ | $\begin{aligned} & 71 \\ & 71 \\ & 71 \end{aligned}$ | $\begin{aligned} & 11 / 4 \\ & 11 / 4 \\ & 11 / 4 \end{aligned}$ | $\begin{aligned} & 395.00 \\ & 495.00 \\ & 595.00 \end{aligned}$ | Optional viscous damping. As above. As above. |
| AU010 "78" | SME 3012-R <br> SME 3009-R <br> SME III | $\mathbf{P}$ <br> $\mathbf{p}$ <br> $\mathbf{P}$ | R <br>  <br> $\mathbf{R}$ <br> $\mathbf{W}$ | yes <br> Yes <br> Yes | Yes <br> Yes Yes | Yes <br> Yes Yes | $\begin{aligned} & 12.16 \\ & \\ & 9.18 \\ & 9.18 \end{aligned}$ |  |  | $\begin{aligned} & 1.25-5 \\ & \\ & 1.25-5 \\ & \text { 2.5 Max } \end{aligned}$ | $\begin{aligned} & 1.5-26 \\ & \\ & 1.5-26 \\ & 0.12 \end{aligned}$ |  |  | $\begin{aligned} & 689.00 \\ & \\ & 649.00 \\ & 439.00 \end{aligned}$ | For LPs, 78s, 16-inch transcriptions, and hill-and-dale recordings; optional fluid damper. <br> As above. <br> As above. |
| AUDIO-TECHNICA | ATP-12T | P | R | No | No | No |  | 14 |  | 0.5 | 3-23 |  |  | 275.00 |  |
| Oennesen | ABLT-1 | A | w | Yes |  | Yes | Adj. | 12 | 0 | Adj. | Any | 100 |  | 2000.00 |  |
| EMINENT <br> TECHNOLOGY | Two | A | W | Yes |  | Yes | $73 / 8$ | $10^{3 / 4}$ | 0 | 0-5 | 0-16 | 22 |  | 1250.00 | Includes air pump; optional fluid damping, $\$ 95.00$. |
| GRAHAM engineering | 1.51 | P | W | Yes | Yes | Yes | 91/4 | 111/2 | 1.0 | 0.90-3.0 | 4-20 | 140 |  | 2495.00 | SME-compatible mounting. |
| kuzma | $\begin{aligned} & \text { Stogi } \\ & \text { Stogi } \\ & \text { Reference } \end{aligned}$ | $\begin{aligned} & \mathbf{P} \\ & \mathbf{P} \end{aligned}$ | $\underset{F}{\mathbf{F}}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & 9 \\ & 9 \end{aligned}$ | $\begin{aligned} & 111 / 4 \\ & 11^{11 / 4} \end{aligned}$ |  |  |  |  | $\begin{aligned} & 11 / 4 \\ & 11 / 4 \end{aligned}$ | $\begin{array}{r} 900.00 \\ 1500.00 \end{array}$ | ABEC-5 bearings. <br> ABEC-9 bearings; azimuth adjustable |
| LINN | Ekos Akito | $\begin{aligned} & \mathrm{P} \\ & \mathbf{P} \end{aligned}$ | $\underset{\mathbf{F}}{\mathbf{F}}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & \begin{array}{l} 83 / 6 \\ 83 / 8 \end{array} \end{aligned}$ | $\begin{aligned} & \mathbf{9} \\ & \mathbf{9} \end{aligned}$ |  | $\begin{aligned} & 0-3 \\ & 0-3 \end{aligned}$ | $\begin{aligned} & 4-9 \\ & 2-10 \end{aligned}$ | $\begin{aligned} & 220 \\ & 100 \end{aligned}$ | $\begin{aligned} & 11 / 4 \\ & 11 / 4 \end{aligned}$ | $\begin{array}{r} 2495.00 \\ 395.00 \end{array}$ |  |
| MGRCH | UP. 4 <br> OP-6 <br> DP-6L <br> DP-6X | P <br> P <br> P <br> P | W <br> w <br> w <br> W | Yes <br> Yes <br> Yes <br> Yes | Yes <br> Yes <br> Yes <br> Yes | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $91 / 8$ <br> 91/8 <br> 121/8 <br> 91/8 | $113 / 4$ <br> $113 / 4$ <br> $143 / 4$ <br> $113 / 4$ |  | $\begin{aligned} & 0.75-3 \\ & 0.75-3 \\ & 1.0-3.5 \\ & 0.75-3 \end{aligned}$ | $\begin{aligned} & 3-15 \\ & \text { 3-15 } \\ & \text { 2-15 } \\ & 3-15 \end{aligned}$ | $\begin{aligned} & 128 \\ & 128 \\ & 128 \end{aligned}$ | $7 / 8$ <br> 7/4 <br> 7/8 <br> 7/6 |  | $\dagger$ With copper wire, S595.00; with silver wire, $\$ 795.00$. Choice of six armiubes; unipivot; viscous damping. Armtube choice and damping as above; dual bearings. <br> Continuous VIA adjustment; external tonearm wiring. |
| NAIM AUOIO | ARO | P | F | Opt. | Yes | Yes | 9 | 111/2 |  |  | 5.5-12 |  | 3/4 | 1695.00 | Unipivot design; with Aro-matic cueing lever, $\mathbf{\$ 1 9 1 0 . 0 0}$. |
| ORACLE AUOIO | $\begin{aligned} & \text { Seta Plus } \\ & \text { Oracle/SME } 345 \end{aligned}$ | $\begin{aligned} & \mathrm{P} \\ & \mathrm{P} \end{aligned}$ | $\begin{aligned} & \mathbf{F} \\ & \mathbf{R} \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & 8.77 \\ & 9.14 \end{aligned}$ | $\begin{aligned} & 11.5 \\ & 12 \end{aligned}$ |  | $\begin{gathered} 3-12 \\ 5-10 \end{gathered}$ | 140 |  |  | $\begin{array}{r} 450.00 \\ \text { From } \\ 1795.00 \end{array}$ | VTA adjustable during play. |
| Rega research | $\begin{aligned} & \text { RB300 } \\ & \text { RB250 } \end{aligned}$ | $\begin{aligned} & \mathrm{P} \\ & \mathrm{P} \end{aligned}$ | $\begin{aligned} & F \\ & F \end{aligned}$ | Yes <br> Yes | Yes Yes | No No |  |  |  |  |  |  | 7/8 | 425.00 | Continuous cable to preamp; handselected bearings. Continuous cable to preamp. |
| REVOLVER | Revolver Revolver Super | $\begin{aligned} & p \\ & p \end{aligned}$ | $\underset{F}{F}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & 9 \\ & 9 \end{aligned}$ | $\begin{aligned} & 11.2 \\ & 11.2 \end{aligned}$ |  | $\begin{aligned} & 0.75-3.00 \\ & 0.75-3.5 \end{aligned}$ | $\begin{aligned} & 2.0-10.0 \\ & 1.0-12.0 \end{aligned}$ | $\begin{aligned} & 45 \\ & 45 \end{aligned}$ | $\begin{aligned} & 1.2 \\ & 1.2 \end{aligned}$ | $\begin{aligned} & 220.00 \\ & 500.00 \end{aligned}$ |  |
| ROKSAN | Artemiz TabrizZi Tabriz | $\begin{aligned} & \hline p \\ & p \\ & p \end{aligned}$ | F F F | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & 9.45 \\ & 9.45 \\ & 9.45 \end{aligned}$ | $\begin{aligned} & 11.5 \\ & 11.5 \\ & 11.5 \end{aligned}$ | $\begin{aligned} & 0.2 \\ & 0.2 \\ & 0.2 \end{aligned}$ | $\begin{aligned} & 1.2-3.5 \\ & 1.2-3.5 \\ & 1.2-2.5 \end{aligned}$ | $\begin{aligned} & 5-15 \\ & 5-15 \\ & 5-10 \end{aligned}$ | $\begin{aligned} & 200 \\ & 200 \\ & 150 \end{aligned}$ | $\begin{aligned} & 7 / 1 / \\ & 7 / 4 \\ & 7 / 8 \end{aligned}$ | $\begin{array}{r} 1500.00 \\ 650.00 \\ 425.00 \end{array}$ | Upgradable to model above. |
| APM | RPM-Arm | P | W | Yes | No | Yes | 10 | 131/4 |  | 1.5 | 6-15 |  | $1 / 4$ | 1350.00 |  |
| SUMIKO/SME | Series 309 <br> Series IV.Vi <br> Series V | P <br> P <br> P |  | Yes <br> Yes <br> Yes | Yes <br> Yes <br> Yes | Yes <br> Yes <br> Yes | $91 / 9$ <br> $91 / 8$ <br> $91 / 8$ | 115/8 <br> 115/8 <br> 115/8 |  | $\begin{aligned} & 0-3 \\ & 0-3 \\ & 0-3 \end{aligned}$ | $\begin{aligned} & 4-18 \\ & 4-18 \\ & 4-18 \end{aligned}$ | $\begin{array}{r} 140 \\ 140 \\ 140 \end{array}$ | $\begin{aligned} & 11 / 4 x \\ & 23 / 4 \end{aligned}$ | $\begin{aligned} & 1195.00 \\ & 1995.00 \\ & 2550.00 \end{aligned}$ | ABEC-3 bearings; damped aluminum casting. <br> ABEC-7 bearings; damped magnesium casting; adjustable static tracking. <br> Bearings and casting as above; adjustable dynamic and static tracking. |
| WELL TEMPERED LAB | Well Tempared Classic | P | F | No | Yes | Yes | 9 | 113/8 |  |  |  |  | 1/4 | 900.00 | Variable viscous damping. |
| WHEATON MUSIC | Triplanar III | P | F | Yes | Yes | Yes | 93/4 | 113/4 | 0.3 | 1-3 | 4-22 |  |  | 2200.00 | Azimuth adjustable; silicon fluid damping; with balanced output, $\$ 2240.00$; optional cables. |



Remote controlled single CD player with 4 X oversampling - 20 track programming - 3beam laser • Dual DAC • 5 Year parts \& labor warranty. $S \triangle A E S S O$


Luxman R361 Orig ${ }^{51100}$
$100 \mathrm{~W} / \mathrm{ch}$ receiver with remote. Features Three S-VHS jacks • 11 inputs • Video amplification and low impedance drive capability.

$$
\text { SALE } \$ 479
$$



ADS R4 Orig ${ }^{\mathbf{s} 1200}$
Sonic quality is the bedrock of R4 performance. This 70W/ch receiver uses a micro computer to set ail tone and level controls digitally.

## No Remote SALE 5399

Pinnacle PN2+ Orig ${ }^{\text {s }} 149$
Patanted diaduct port tuning. enables PN2+ to achieve a remarkable low frequency reproduction. Pertect for bookshelf or surround sound applica-

tions. $S \Delta L=58$

## NHT Zero

Orig ${ }^{\text {s19 }} 199$
2-Way bookshelf/surround sound speaker. Designed using the latest computer technology, the Zero delivers astonishing response and clarity from a dimunitive package SAE SM 39


Multi-room tuner/pre-amplifier teatures - 20 AM/FM station presets - Fixed level preampout jacks for multiple amplifiers. Remote control included. $s$ ALE 5483

## Canton Ergo 70 Orig ${ }^{51500}$

Beautiful three way floorstanding model is designed to take up an absolute minimum of itloor space while providing high precision definition and full tonal balance.

## SALE $\$ 749$



Hughes AK-500 Orig ${ }^{\$ 179}$
The AK-500 Sound Retrieval System is basically a stereo enhancement system that simulates 3D/Full surround sound from two ordinary speakers.

## SALE ${ }^{5} 99$

## Celestion 3 <br> Orig ${ }^{\text {s } 289 ~}$

The Celestion 3 two way design makes use of the award winning metal dome technology. Specially designed 5 mid/bass driver


$$
\text { SALE } \$ 169
$$

## For More Great Deals On The Most Wanted Electronics See Our Ads In Stereo Review - Stereophile Video Magazine • Video Maker

## Luxman G-007 Orig ${ }^{\text {s } 500 ~}$

The G007 digital surround processor delivers $25 \mathrm{~W} / \mathrm{ch}$ for rear speakers. Built-in 7 band equalizer with 4 computer memory EQ patterns

## and remote control. SALE \$159

## Advent A2004

## Orig ${ }^{5} 449$

The Advent Model 250 speaker system is a bookshelf two way design that heads Advents' New Vision Series. Uniform trequency response and good quality sound.

## SALE $\$ 219$

## JVC ALA95BK Orig ${ }^{\text {s }} 129$

Belt driven turntable. Cartridge included and mounted. No dust cover

## SALE \$49

Rockford Fosgate Punch 75 Orig ${ }^{\text {s }} 399$
75 watt power amplifies for the car. Features MOSFET output, 37.5 Wx 2 into 4 ohms@<05THD Gold plated RCA jacks, bass and treble conitrols,

> protection circuitry.

## SALE $\$ 199$

## Luxman F116 Orig s950

Digital Dolby Pro Logic surround processor. The computer continually adjusts all parameters to give you an experience previously only availabie in movie theaters. Remote included.

## SALE 5399



## CUSTOMER SERVICE

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For Returns or Claims Monday - Friday 9-5

| STYLUS TYPE <br> C-Conlcal <br> S-Spherical <br> E-Elliptical <br> M-MicroLine. <br> MicroRidge, or stm <br> V-Van den Hul <br> X-Hyper-Ellipical <br> Stereohedron, Fine <br> Line Contact, Lung <br> Line Trace, or simila <br> MANUFACTURER | ar <br> line, ine, ar |  | - | — | 5ic | - |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AUDIO BY VAN ALSTINE | Longhorn 2 | $10-55 \pm 1.5$ | IM | No | 30 | 25 | 5.6 | 1.5-2.0 |  | E | $0.3 \times 0.6$ |  | U/F | S | 8 | 99.00 | 45.00 |
| AUDIO NOTE | $10-2$ 10-Lid | $\begin{aligned} & 10-50 \pm 3 \\ & 10-50 \pm 2 \end{aligned}$ | MC MC | $\begin{aligned} & \mathrm{No} \\ & \mathrm{No} \end{aligned}$ | $\begin{aligned} & 25 \\ & 30 \end{aligned}$ |  | $\begin{aligned} & 0.05 \\ & 0.04 \end{aligned}$ | $\begin{aligned} & 1.3-3.5 \\ & 1.5-4.0 \end{aligned}$ |  | $\stackrel{V}{v}$ |  | $\begin{aligned} & 15 / 10 \\ & 15 / 10 \end{aligned}$ | $\begin{aligned} & F \\ & F \end{aligned}$ | $\begin{aligned} & \mathrm{S} \\ & \mathrm{~S} \end{aligned}$ | $\begin{aligned} & 18 \\ & 19 \end{aligned}$ | $\begin{array}{r} 2995.00 \\ 4995.00 \end{array}$ | $\begin{aligned} & 1495.00 \\ & 1995.00 \end{aligned}$ |
| AUDIOQUESt | A0 M-1 <br> AQ MC-3 <br> AQ MC-5 <br> AQ 404i-MH <br> AQ 404i-L <br> AO B-200MH <br> AQ B-200L <br> A0 7000NSX | $\begin{aligned} & 15-30 \\ & 15-35 \\ & 10-40 \\ & 10-50 \\ & 10-50 \\ & 10-50 \\ & 10-50 \\ & 10-50 \end{aligned}$ | IM MC MC MC MC MC MC MC | No <br> No <br> No <br> Yes <br> Yes <br> Yes <br> Yes <br> No | $\begin{aligned} & 25 \\ & 25 \\ & 30 \\ & 30 \\ & 30 \\ & 30 \\ & 30 \\ & 30 \end{aligned}$ | $\begin{aligned} & 20 \\ & 20 \\ & 25 \\ & 25 \\ & 25 \\ & 25 \\ & 25 \\ & 25 \end{aligned}$ | $\begin{aligned} & 3.0 \\ & 2.5 \\ & 1.4 \\ & 1.4 \\ & 0.5 \\ & 1.4 \\ & 0.5 \\ & 0.3 \end{aligned}$ | $\begin{aligned} & 1.5 \\ & 2.0 \\ & 1.8 \\ & 1.9 \\ & 1.9 \\ & 1.9 \\ & 1.9 \\ & 1.9 \end{aligned}$ |  | $\begin{aligned} & \mathbf{E} \\ & \mathbf{E} \\ & \mathbf{X} \\ & \mathbf{X} \\ & \mathbf{X} \\ & \mathbf{X} \\ & \mathbf{X} \\ & \mathbf{X} \end{aligned}$ | $\begin{aligned} & 0.3 \times 0.7 \\ & 0.3 \times 0.7 \\ & 0.3 \times 1.6 \\ & 0.3 \times 1.6 \\ & 0.3 \times 1.6 \\ & 0.3 \times 1.6 \\ & 0.3 \times 1.6 \\ & 0.3 \times 1.6 \end{aligned}$ |  | $\begin{aligned} & U \\ & U \\ & F \\ & F \\ & F \\ & F \\ & F \\ & F \end{aligned}$ | $\begin{aligned} & S \\ & S \\ & S \\ & S \\ & S \\ & S \\ & S \\ & S \end{aligned}$ | $\begin{aligned} & 4.5 \\ & 8.1 \\ & 8.1 \\ & 9.2 \\ & 9.2 \\ & 9.5 \end{aligned}$ | $\begin{array}{r} 99.00 \\ 195.00 \\ 395.00 \\ 695.00 \\ 695.00 \\ 995.00 \\ 995.00 \\ 1595.00 \end{array}$ | $\begin{array}{r} 50.00 \\ 135.00 \\ 335.00 \\ 595.00 \\ 595.00 \\ 750.00 \\ 750.00 \\ 1195.00 \end{array}$ |
| AUDIO "78" | Styli for vintage sources |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 69.00 |
| AUDIO-TECHNICA | AT300P <br> AT301EP <br> AT311EP <br> AT316EP <br> AT331LP <br> AT132EP <br> AT70 <br> AT71E <br> AT120 E/T <br> AT440ML <br> ATML170 <br> ATP-2 <br> ATP-2XN <br> (w/2 Styli) | $\begin{aligned} & 20-22 \pm 1 \\ & 15-25 \pm 1 \\ & 15-27 \pm 1 \\ & 10-27 \pm 1 \\ & 10-30 \pm 1 \\ & 10-30 \pm 1 \\ & 200-20 \pm 1.5 \\ & 20-22 \pm \pm 1.5 \\ & 15-25 \pm 1 \\ & 5-32 \pm 1 \\ & 5-40 \pm 1 \\ & 15-22 \pm 1.5 \\ & 15-22 \pm 1.5 \end{aligned}$ | MM <br> MM <br> MM <br> MM <br> MM <br> MM <br> MM <br> MM <br> MM <br> MM <br> MM <br> MM <br> MM | No <br> No <br> No <br> No <br> No <br> No <br> No <br> No <br> No <br> No <br> Yes <br> No <br> No | 26 26 29 29 31 30 20 22 29 30 31 23 23 | $\begin{aligned} & 16 \\ & 17 \\ & 18 \\ & 20 \\ & 21 \\ & 20 \\ & 15 \\ & 17 \\ & 20 \\ & 20 \\ & 21 \\ & 17 \\ & 17 \end{aligned}$ | $\begin{aligned} & \mathbf{5} \\ & \mathbf{5} \\ & \mathbf{5} \\ & \mathbf{5} \\ & \mathbf{5} \\ & \\ & 5.0 \\ & 3.5 \\ & 3.5 \\ & \mathbf{5 . 0} \\ & \mathbf{5} \\ & 5.0 \\ & \mathbf{5 . 3} \\ & \mathbf{5 . 3} \end{aligned}$ | 1.0-1.5 <br> 1.0-1.5 <br> 1.0-1.5 <br> 1.0-1.5 <br> 1.0-1.5 <br> 1.0-1.5 <br> 1.5-2.5 <br> $1-2$ <br> 1.0-1.8 <br> 0.8-1.6 <br> 0.3-1.25 <br> 3-5 <br> 3-5 | $\begin{array}{\|l\|} \hline 100-200 \\ 100-200 \\ 100-200 \\ 100-200 \\ 100-200 \\ \\ 100-200 \\ 100-200 \\ 100-200 \\ 100-200 \\ 100-200 \\ 100-200 \\ 200 \\ 200 \end{array}$ | $\begin{aligned} & \mathrm{C} \\ & \mathbf{E} \\ & \mathbf{E} \\ & \mathbf{E} \\ & \mathbf{X} \\ & \mathbf{E} \\ & \mathbf{C} \\ & \mathbf{E} \\ & \mathbf{E} \\ & \mathbf{M} \\ & \mathbf{M} \\ & \mathbf{E} \\ & \mathbf{E} \end{aligned}$ | 0.6 <br> $0.4 \times 0.7$ <br> $0.3 \times 0.7$ <br> $0.3 \times 0.7$ <br> Linear <br> Contact <br> $0.2 \times 0.7$ <br> 0.6 <br> $0.4 \times 0.7$ <br> $0.3 \times 0.7$ <br> $0.4 \times 0.7$ <br> $0.4 \times 0.7$ |  | $\begin{aligned} & \mathrm{U} \\ & \mathrm{U} \\ & \mathrm{U} \\ & \mathrm{U} \\ & \mathrm{U} \\ & \mathrm{U} \\ & \mathrm{U} \\ & \mathrm{U} \\ & \mathrm{U} \\ & \mathrm{U} \\ & \mathrm{U} \\ & \mathrm{U} \end{aligned}$ | P/S P/S P/S P/S P/S <br> $P$ $S$ <br> S <br> S <br> S <br> S <br> $\mathbf{S}$ $\mathbf{S}$ | 6 6 6 6 6 <br> 6.4 <br> 6.5 <br> 7.0 <br> 7.2 <br> 7.2 | $\begin{array}{r} 55.00 \\ 65.00 \\ 75.00 \\ 100.00 \\ 145.00 \\ 150.00 \\ 45.00 \\ 55.00 \\ 95.00 \\ 195.00 \\ 345.00 \\ 60.00 \\ 90.00 \end{array}$ | $\begin{array}{r} 25.00 \\ 30.00 \\ 35.00 \\ 50.00 \\ 65.00 \\ 65.00 \\ 25.00 \\ 35.00 \\ 50.00 \\ 85.00 \\ 165.00 \\ 35.00 \end{array}$ |
| BANG \& OLUFSEN | MMC 1 <br> MMC 2 <br> MMC 3 <br> MMC 4 <br> MMC 5 | $\begin{aligned} 20-20 & \pm 1 \\ 20-20 & \pm 1.5 \\ 20-20 & \pm 2 \\ 20-20 & \pm 2.5 \\ 20-20 & \pm 3 \end{aligned}$ | MI <br> MI <br> MI <br> MI <br> MI | Yos <br> Yes <br> Yes <br> Yes <br> Yes | $\begin{aligned} & 30 \\ & 25 \\ & 25 \\ & 22 \\ & 20 \end{aligned}$ | $\begin{aligned} & 22 \\ & 20 \\ & 20 \\ & 17 \\ & 15 \end{aligned}$ | $\begin{aligned} & 2.12 \\ & 2.12 \\ & 2.12 \\ & 2.12 \\ & 2.12 \end{aligned}$ | $\begin{aligned} & 1 \\ & 1 \\ & 1.2 \\ & 1.2 \\ & 1.5 \end{aligned}$ | $\begin{aligned} & 200-400 \\ & 200-400 \\ & 200-400 \\ & 200-400 \\ & 200-400 \end{aligned}$ | $\begin{aligned} & X \\ & \mathbf{X} \\ & \mathbf{E} \\ & \mathbf{E} \\ & \mathbf{E} \end{aligned}$ | $\begin{aligned} & 0.1 \times 0.1 \\ & 0.12 \times 0.12 \\ & 0.15 \times 0.15 \\ & 0.2 \times 0.2 \\ & 0.25 \times 0.25 \end{aligned}$ |  | No <br> No <br> No <br> No <br> No | 1 1 1 | $\begin{aligned} & 1.6 \\ & 1.6 \\ & 1.6 \\ & 1.6 \\ & 1.6 \end{aligned}$ | $\begin{array}{r} 500.00 \\ 270.00 \\ 170.00 \\ 100.00 \\ 70.00 \end{array}$ |  |
| BENZ-MICRO | MC Ruby MC Reference MC H2O MC M0.9 MC LO. 4 MC Gold MC Silver MC 20E II | $\begin{aligned} & 10-50 \pm 0.5 \\ & 10-50 \pm 0.5 \\ & 10-50 \pm 0.5 \\ & 10-50 \pm 0.5 \\ & 10-50 \pm 0.5 \\ & 20-40 \pm 0.5 \\ & 20-40 \pm 0.5 \\ & 15-40 \pm 0.5 \end{aligned}$ | MC MC MC MC MC MC MC MC | Yes <br> Yes <br> Yes <br> Yes <br> Yes <br> No <br> No <br> No | $\begin{aligned} & 40 \\ & 40 \\ & 40 \\ & 40 \\ & 40 \\ & 30 \\ & 30 \\ & 25 \end{aligned}$ | $\begin{aligned} & 30 \\ & 30 \\ & 30 \\ & 30 \\ & 30 \end{aligned}$ | $\begin{aligned} & 0.3 \\ & 0.4 \\ & 2.0 \\ & 0.9 \\ & 0.4 \\ & 0.4 \\ & 2.0 \\ & 2.5 \end{aligned}$ | $\begin{aligned} & 2-2.5 \\ & 2-2.5 \\ & 2-2.5 \\ & 2-2.5 \\ & 2-2.5 \\ & 1.8-2.2 \\ & 1.8-2.2 \\ & 1.7-2.3 \end{aligned}$ |  | $M$ $M$ $M$ $M$ $M$ $M$ $E$ $E$ | $\begin{aligned} & 0.3 \times 0.7 \\ & 0.3 \times 0.7 \\ & 0.3 \times 0.7 \end{aligned}$ | 15/15 15/15 15/15 15/15 15/15 15/15 15/15 | $F$ $F$ $F$ $F$ $F$ $F$ $F$ $U$ | $\begin{aligned} & \mathbf{S} \\ & \mathbf{S} \\ & \mathbf{S} \\ & \mathbf{S} \\ & \mathbf{S} \\ & \mathbf{S} \\ & \mathbf{S} \\ & \mathbf{S} \end{aligned}$ | $\begin{aligned} & 8.6 \\ & 8.6 \\ & 8.6 \\ & 8.6 \\ & 8.6 \\ & 5.7 \\ & 5.7 \\ & 4 \end{aligned}$ | $\begin{array}{r} 3000.00 \\ 2500.00 \\ 1800.00 \\ 1500.00 \\ 1200.00 \\ 325.00 \\ 325.00 \\ 125.00 \end{array}$ | $\begin{array}{r} 500.00 \\ 500.00 \\ 500.00 \\ 500.00 \\ 500.00 \\ 175.00 \\ 175.00 \\ 75.00 \end{array}$ |
| DENON | $\begin{aligned} & D L-160 \\ & D L-110 \end{aligned}$ | $\begin{aligned} & 20-50 \\ & 20-46 \end{aligned}$ | $\begin{aligned} & \mathrm{MC} \\ & \mathrm{MC} \end{aligned}$ |  | $\begin{aligned} & 28 \\ & 25 \end{aligned}$ |  | $\begin{aligned} & 1.6 \\ & 1.6 \end{aligned}$ | $\begin{aligned} & 1.5-2.1 \\ & 1.5-2.1 \end{aligned}$ |  |  |  |  | $\begin{aligned} & F \\ & F \end{aligned}$ | $\begin{aligned} & \mathbf{S} \\ & \mathbf{S} \end{aligned}$ | $\begin{aligned} & 4.8 \\ & 4.8 \end{aligned}$ | $\begin{array}{r} 125.00 \\ 95.00 \end{array}$ | $\begin{aligned} & 75.00 \\ & 57.00 \end{aligned}$ |
| DYNAVECTOR | $X X-1 L$ $x x-1$ <br> 17D2 Mk II 23RS Mk II 10x4 Mk II $50 \times 4$ Mk II | $\begin{aligned} & 20-50 \pm 2 \\ & 20-50 \pm 2 \\ & 20-100 \pm 2 \\ & 20-80 \pm 2 \\ & 20-20 \pm 2 \\ & 20-20 \pm 2 \end{aligned}$ | MC <br> MC <br> MC <br> MC <br> MC <br> MC | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \\ & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{aligned} & 30 \\ & 30 \\ & 25 \\ & 25 \\ & 25 \\ & 25 \end{aligned}$ |  | $\begin{aligned} & 0.25 \\ & 2.0 \\ & 0.15 \\ & 0.15 \\ & 2.0 \\ & 2.0 \end{aligned}$ | 1.9-2.3 <br> 1.8-2.2 <br> 1.8-2.0 <br> 1.7-1.9 <br> 1.5-1.9 <br> 1.5-1.7 |  | $\begin{aligned} & \hline \mathrm{M} \\ & \mathrm{X} \\ & \mathrm{M} \\ & \mathrm{M} \\ & \mathrm{E} \\ & \mathrm{E} \end{aligned}$ |  |  | $\begin{aligned} & F \\ & F \\ & F \\ & F \\ & F \\ & F \end{aligned}$ | $\begin{aligned} & \mathbf{S} \\ & \mathbf{S} \\ & \mathbf{S} \\ & \mathbf{S} \\ & \mathbf{S} \\ & \mathbf{S} \end{aligned}$ | $\begin{aligned} & 12 \\ & 12 \\ & 5.3 \\ & 5.3 \\ & 4.6 \\ & 4.5 \end{aligned}$ | $\begin{array}{r} 1100.00 \\ 1100.00 \\ 620.00 \\ 470.00 \\ 260.00 \\ 210.00 \end{array}$ | $\begin{aligned} & 880.00 \\ & 880.00 \\ & 496.00 \\ & 376.00 \\ & 208.00 \\ & 168.00 \end{aligned}$ |
| ESOTERIC SOUnd | Replacement styli for Stanton 500 \& Plckering XV series: ES3OT <br> ES35T <br> ES40T <br> ES80S | $\begin{aligned} & 20-17 \\ & 20-17 \\ & 20-16 \\ & 20-15 \end{aligned}$ | MI <br> MI <br> MI <br> MI | No <br> No <br> No <br> No |  |  |  | $\begin{aligned} & 2-5 \\ & 2-5 \\ & 2-5 \\ & 2-5 \end{aligned}$ |  | $\begin{aligned} & \mathrm{C} \\ & \mathrm{C} \\ & \mathrm{C} \\ & \mathrm{~S} \end{aligned}$ | 3.0 , truncated 3.5, Iruncated 4.0, truncated 8.0 | $\begin{aligned} & 10 / 10 \\ & 10 / 10 \\ & 10 / 40 \\ & 10 / 10 \end{aligned}$ | U <br> U <br> U <br> U |  |  |  | $\begin{aligned} & 75.00 \\ & 75.00 \\ & 75.00 \\ & 75.00 \end{aligned}$ |
| GOLDRING | Excel <br> Elite <br> Eroica Low Out <br> Eroica High Out G1042 <br> G1022GX <br> G1012GX <br> G1012 78 rpm <br> G1006 <br> Elektra <br> Elan | $\begin{aligned} & 20-30 \pm 2 \\ & 20-30 \pm 2 \\ & 20-30 \pm 2 \\ & 20-22 \pm 3 \\ & 20-20 \pm 2 \\ & 20-20 \pm 2 \\ & 20-20 \pm 2 \\ & 20-20 \pm 2 \\ & 20-20 \pm 3 \\ & 20-20 \pm 3 \end{aligned}$ | MC <br> MC <br> MC <br> MC <br> MM <br> MM <br> MM <br> MM <br> MM <br> MM <br> MM | Yes <br> Yes <br> No <br> No <br> No <br> No <br> No <br> No <br> No <br> No <br> No | 25 25 25 25 25 25 25 25 20 20 |  | 0.5 <br> 0.5 <br> 0.5 <br> 2.5 <br> 6.5 <br> 6.5 <br> 6.5 <br> 6.5 <br> 6.5 <br> 5.0 5.0 | 1.5-2.0 1.5-2.0 1.5-2.0 1.5-2.0 1.5-2.5 1.5-2.5 1.5-2.5 1.5-2.5 1.5-2.5 1.75 1.5-3.0 | $100-500$ $100-500$ $200-$ 1000 $100-500$ $150-200$ $150-200$ $150-200$ $150-200$ $150-400$ $150-400$ | $v$ $v$ $v$ <br> $V$ $V$ $V$ $V$ $E$ $E$ | VDH I <br> GYGER I <br> GYGER II <br> GYGER II <br> GYGER S GYGER II GYGER I $\begin{aligned} & 0.7 \times 0.3 \\ & 0.6 \end{aligned}$ | 16/16 <br> 18/18 <br> 18/18 <br> 18/18 <br> 24/16 <br> 24/16 <br> 24/16 <br> 24/16 <br> 20/ <br> 16/ | $\begin{aligned} & \mathbf{F} \\ & \mathbf{F} \\ & \mathbf{F} \\ & \mathbf{F} \\ & U \\ & U \\ & U \\ & U \\ & U \\ & U \end{aligned}$ | $\begin{aligned} & \mathbf{S} \\ & \mathbf{S} \\ & \mathbf{S} \\ & \mathbf{S} \\ & \mathbf{S} \\ & \mathbf{S} \\ & \mathbf{S} \\ & \mathbf{S} \\ & \mathbf{S} \\ & \mathbf{S} \end{aligned}$ | $\begin{aligned} & 8.5 \\ & 5.7 \\ & 5.5 \\ & 5.5 \\ & 6.3 \\ & 6.3 \\ & 6.3 \\ & 6.3 \\ & 6.3 \\ & 4.2 \\ & 4.2 \end{aligned}$ | $\begin{array}{r} 1295.00 \\ 575.00 \\ 350.00 \\ \\ 300.00 \\ 275.00 \\ 200.00 \\ 150.00 \\ 150.00 \\ 125.00 \\ 99.00 \\ 60.00 \end{array}$ | $\begin{array}{r} 900.00 \\ 400.00 \\ 250.00 \\ 200.00 \\ 175.00 \\ 130.00 \\ 90.00 \\ 90.00 \\ 40.00 \\ 60.00 \end{array}$ |
| GRADO LABORATORIES <br> (Continued) | $\begin{aligned} & \mathrm{Z2}+ \\ & \mathrm{Z1}+ \\ & \mathrm{Z}+ \\ & \mathbf{Z F 1 +} \\ & \mathbf{Z F 2 +} \\ & \mathbf{Z F 3 E}+ \end{aligned}$ | $\begin{aligned} & 10-60 \\ & 10-60 \\ & 10-55 \\ & 10-55 \\ & 10-55 \\ & 10-55 \end{aligned}$ | MI <br> MI <br> MI <br> MI <br> MI <br> MI | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { No } \end{aligned}$ |  | $\begin{aligned} & 25 \\ & 25 \\ & 25 \\ & 25 \\ & 25 \\ & 25 \end{aligned}$ | $\begin{aligned} & 1.4 \\ & 1.4 \\ & 4.0 \\ & 4.0 \\ & 4.0 \\ & 4.0 \end{aligned}$ | $\begin{aligned} & 1.5 \\ & 1.5 \\ & 1-2 \\ & 1-2 \\ & 1-2 \\ & 1-2 \end{aligned}$ |  | $E$ $E$ $E$ | $\begin{aligned} & 0.15 \times 0.9 \\ & 0.2 \times 0.2 \end{aligned}$ |  | $\begin{aligned} & U \\ & U \\ & U \\ & U \\ & U \\ & U \end{aligned}$ | P/S P/S P/S P/S P/S P/S | $\begin{aligned} & 5 \\ & 5 \\ & 5.5 \\ & 5.5 \\ & \mathbf{5 . 5} \\ & \mathbf{5 . 5} \end{aligned}$ | $\begin{array}{r} 265.00 \\ 180.00 \\ 130.00 \\ 110.00 \\ 86.00 \\ 69.00 \end{array}$ | $\begin{array}{r} 110.00 \\ 75.00 \\ 55.00 \\ 45.00 \\ 36.00 \\ 33.00 \end{array}$ |

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| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| AIWA | HP－X1000 <br> HP－X500 <br> HP－X80 <br> HP－X35 <br> HP－X30 <br> HP－A560 <br> HP－A550 <br> HP－A360 <br> HP－A260 <br> HP－A250 <br> HP－A150 <br> HP－J9 <br> HP－J6 <br> HP－J3 <br> HP－V88 <br> HP－V58 <br> HP－V65 <br> HP－V28 <br> HP－V23 <br> HP－V16 <br> HP－V14 | Dynamic <br> Dynamic <br> Dynamic <br> Dynamic <br> Dynamic <br> Dynamic <br> Dynamic <br> Dynamic <br> Dynamic <br> Dynamic <br> Dynamic <br> Dynamic <br> Dynamic <br> Oynamic <br> Dynamic <br> Dynamic <br> Dynamic <br> Dynamic <br> Dynamic <br> Dynamic <br> Dynamic | 5－30 $5-27$ $5-25$ $5-23$ $5-23$ $7-20$ $7-20$ $7-20$ $20-20$ $20-20$ $20-20$ $8-25$ $8-25$ $8-25$ $8-25$ $10-25$ $7-25$ $7-25$ $7-25$ $7-25$ $7-25$ | 40 40 40 40 40 40 40 40 32 40 32 16 16 16 16 16 16 16 16 16 16 | 104 104 102 102 102 103 103 103 97 97 97 105 105 105 105 104 109 109 109 109 105 | $\begin{aligned} & 1.5 \mathrm{~W} \\ & 1.5 \mathrm{~W} \\ & 1 \mathrm{~W} \\ & 1 \mathrm{~W} \\ & 1 \mathrm{~W} \\ & 200 \mathrm{~mW} \\ & 200 \mathrm{~mW} \\ & 200 \mathrm{~mW} \\ & 100 \mathrm{~mW} \\ & 100 \mathrm{~mW} \\ & 100 \mathrm{~mW} \\ & 40 \mathrm{~mW} \\ & 40 \mathrm{~mW} \\ & 40 \mathrm{~mW} \\ & 40 \mathrm{~mW} \\ & 40 \mathrm{~mW} \\ & 50 \mathrm{~mW} \\ & 50 \mathrm{~mW} \\ & 50 \mathrm{~mW} \\ & 50 \mathrm{~mW} \\ & 40 \mathrm{~mW} \end{aligned}$ |  | $\begin{aligned} & 9.8 \\ & 9.8 \\ & 9.8 \\ & 26 \\ & 8 \\ & 16.4 \\ & 6.5 \\ & 6.5 \\ & 3.6 \\ & 4.9 \\ & 4.9 \\ & 3.9 \\ & 4 \\ & 3.9 \\ & 4 \\ & 4 \\ & 4 \\ & 4 \\ & 4 \\ & 4 \\ & 4 \end{aligned}$ |  | A <br> A <br> A <br> A <br> A <br> A <br> A <br> A <br> A <br> M． <br> M／A <br> M <br> A <br> M <br> M <br> M <br> M <br> M M | No No No No No No No No No No No No No No Yes No Yes Yes No No | C <br> ${ }^{C}$ <br> C／D <br> C／D <br> C／D <br> C／D <br> C／D <br> C／D <br> 1 <br> 1 1 1 1 1 1 1 | A <br> A <br> A <br> A <br> A <br> A <br> A <br> A <br> F <br> A <br> A <br> N N <br> A <br> N N <br> N N <br> N N <br> N N | Leather <br> Leather <br> Foam <br> Foam <br> Foam <br> Foam <br> Foam <br> Foam <br> Foam <br> Foam <br> Foam <br> Plastic <br> Plastic <br> Plastic <br> Plastic <br> Plastic <br> Plastic <br> Plastic <br> Plastic <br> Plastic <br> Plastic | $\begin{aligned} & 8.8 \\ & 8.4 \\ & 4.9 \\ & 4.9 \\ & 4.9 \\ & 2.6 \\ & 3 \\ & 2.3 \\ & 1.9 \\ & 1.7 \\ & 1.6 \\ & 0.18 \\ & 0.02 \\ & 0.53 \\ & 0.32 \\ & 0.21 \\ & 0.18 \\ & 0.18 \\ & 0.18 \\ & 0.18 \\ & 0.18 \end{aligned}$ | $\begin{array}{r} 150.00 \\ 100.00 \\ 70.00 \\ 70.00 \\ 60.00 \\ 35.00 \\ 40.00 \\ 25.00 \\ 20.00 \\ 20.00 \\ 15.00 \\ 60.00 \\ 45.00 \\ 35.00 \\ 55.00 \\ 45.00 \\ 35.00 \\ 27.00 \\ 25.00 \\ 20.00 \\ 15.00 \end{array}$ |  |
| akg | K141／2 <br> K240M <br> K240DF <br> K270S <br> K280 <br> K400 <br> K500 <br> K1000 | Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic | $\begin{aligned} & 20-20 \\ & 15-20 \\ & 15-20 \\ & 20-20 \\ & 20-20 \\ & 20-26 \\ & 15-27 \\ & 20-20 \end{aligned}$ | $\begin{aligned} & 600 \\ & 600 \\ & 600 \\ & 75 \\ & 75 \\ & 120 \\ & 120 \\ & 120 \end{aligned}$ | $\begin{aligned} & 97.5 \\ & 88 \\ & 88 \\ & 92 \\ & 94 \\ & 96 \\ & 94 \\ & 74 \end{aligned}$ | 200 mW <br> 200 mW <br> 200 mW <br> 200 mW <br> 200 mW <br> 200 mW <br> 200 mW <br> 1W | $0.05$ | 10 10 10 10 10 10 10 15 | $\begin{aligned} & R \\ & R \\ & R \\ & R \\ & R \\ & R \\ & R \\ & R \\ & R \\ & R \end{aligned}$ | P <br> P <br> P $\mathbf{p}$ <br> P $\mathbf{P}$ <br> M／A <br> M／A <br> XLR | No No No No No No <br> No <br> No | $\begin{aligned} & C \\ & C \\ & C \\ & C \\ & C \\ & C \\ & C \\ & 0 \end{aligned}$ | $\begin{aligned} & A \\ & A \\ & A \\ & A \\ & A \\ & A \\ & A \\ & A \\ & A \end{aligned}$ | Vinyl <br> Vinyl <br> Vinyl <br> Vinyl <br> Vinyl <br> Fabric <br> Fabric\＆ <br> Leather <br> Metal | 7.9 8.4 8.4 9.5 8.75 7.8 8.1 10 | $\begin{aligned} & 119.00 \\ & 139.00 \\ & 169.00 \\ & 209.00 \\ & 199.00 \\ & 189.00 \\ & 229.00 \\ & 999.00 \end{aligned}$ | Auto on／ott switch． <br> Doesn＇t touch ear． |
| AUDIO－TECHNICA | ATH－M2X ATH－M3X | Dynamic Dynamic | $\begin{aligned} & 20-20 \\ & 20-21 \end{aligned}$ | $\begin{aligned} & 4-16 \\ & 4-16 \end{aligned}$ | $\begin{aligned} & 100 \\ & 100 \end{aligned}$ |  |  | $\begin{aligned} & 11.5 \\ & 11.5 \end{aligned}$ | $\mid \mathbf{F}$ | $\begin{aligned} & M / A \\ & M / A \end{aligned}$ | $\begin{array}{\|l} \text { No } \\ \text { No } \end{array}$ | $\left\lvert\, \begin{aligned} & C \\ & C \end{aligned}\right.$ | $\begin{aligned} & \mathbf{A} \\ & \mathbf{A} \end{aligned}$ | Vinyl Vinyl | $\begin{aligned} & 4 \\ & 5 \end{aligned}$ | $\begin{aligned} & 29.95 \\ & 39.95 \end{aligned}$ |  |
| AZDEN | $\begin{aligned} & \text { DM-100 } \\ & \text { DM-90 } \\ & \text { DM-70 } \\ & \text { DM-40 } \end{aligned}$ | Dynamic Dynamic Dynamic Dynamic | $\begin{aligned} & 3-28 \\ & 4-26 \\ & 4-24 \\ & 15-22 \end{aligned}$ | $\begin{aligned} & 32 \\ & 32 \\ & 32 \\ & 40 \end{aligned}$ | $\begin{aligned} & 106 \\ & 105 \\ & 103 \\ & 102 \end{aligned}$ | $\begin{aligned} & 1 V \\ & 800 \\ & 500 \\ & 200 \end{aligned}$ |  | $\begin{aligned} & 10 \\ & 10 \\ & 10 \\ & 10 \end{aligned}$ | $\begin{aligned} & \mathbf{F} \\ & \mathbf{F} \\ & \mathbf{F} \\ & \mathbf{F} \end{aligned}$ | $\begin{aligned} & \mathrm{A} \\ & \mathrm{~A} \\ & \mathrm{~A} \\ & \mathrm{~A} \end{aligned}$ |  | $\begin{aligned} & \mathrm{C} \\ & \mathbf{S} \\ & \mathbf{S} \\ & \mathrm{~S} \end{aligned}$ | $\begin{array}{\|l} \hline \mathbf{A} \\ \text { A } \\ \text { A } \\ \text { A } \end{array}$ | Vinyl Vinyl Vinyl Vinyl |  | $\begin{array}{r} 129.95 \\ 99.95 \\ 79.95 \\ 69.95 \end{array}$ |  |
| BANG \＆OLUFSEN | Form 1 Form 2 | Dynamic Dynamic | $\begin{aligned} & 20-20 \\ & 40-20 \end{aligned}$ | $\begin{aligned} & 35 \\ & 30 \end{aligned}$ | $\begin{aligned} & 94 \\ & 94 \end{aligned}$ |  |  | $\begin{aligned} & 10 \\ & 10 \end{aligned}$ | $\stackrel{C}{F}$ | $M / A$ $M / A$ | $\begin{array}{\|l} \text { No } \\ \text { No } \end{array}$ | $\left\lvert\, \begin{aligned} & 0 \\ & 0 \end{aligned}\right.$ | $\begin{array}{\|l} \mathrm{A} \\ \mathrm{~A} \end{array}$ | Foam Foam | $\begin{aligned} & 5.5 \\ & 2.4 \end{aligned}$ | $\begin{array}{r} 130.00 \\ 85.00 \end{array}$ |  |
| BEYERDYNAMIC | DT－911 <br> DT－901 <br> OT－811 <br> OT－801 <br> DT－511 <br> DT－411 <br> DT－311 <br> DT－211 <br> DT－211TV <br> IRS－890 <br> IRS－790 <br> DT－770 PRD <br> DT－990 PRO | Dynamic <br> Dynamic <br> Dynamic <br> Oynamic <br> Dynamic <br> Dynamic Oynamic Dynamic Dynamic <br> Dynamic <br> Dynamic Dynamic <br> Dynamic | $5-35$ $5-30$ $5-35$ $5-30$ $10-22$ $15-20$ $20-20$ $30-18$ $30-18$ $5-35$ $20-23$ $5-35$ $5-35$ | $\begin{aligned} & 250 \\ & 250 \\ & 250 \\ & 250 \\ & 250 \\ & 250 \\ & 40 \\ & 40 \\ & 40 \\ & 250 \\ & 40 \\ & 600 \\ & 600 \end{aligned}$ | 115 115 114 114 114 122 118 118 118 115 116 116 116 | $\begin{aligned} & 50 \\ & 50 \\ & 100 \\ & 100 \\ & 100 \\ & 100 \\ & 100 \\ & 100 \\ & 100 \\ & 50 \\ & 100 \\ & 100 \\ & 100 \end{aligned}$ | $0.2 \dagger$ $0.25 \dagger$ $0.2 \dagger$ $0.2 \dagger$ $0.2 \dagger$ $0.2 \dagger$ $0.3 \dagger$ $0.3 \dagger$ $0.3 \dagger$ 0.2 0.3 $0.2 \dagger$ $0.2 \dagger$ | $\begin{aligned} & 10 \\ & 10 \\ & 10 \\ & 10 \\ & 10 \\ & 10 \\ & 10 \\ & 10 \\ & 20 \\ & 10 \\ & 10 \\ & 10 \end{aligned}$ | $\begin{aligned} & \hline \mathrm{C} \\ & \mathrm{C} \\ & \mathrm{C} \\ & \mathrm{C} \\ & \mathrm{C} \\ & \mathrm{~F} \\ & \mathrm{~F} \\ & \mathrm{~F} \\ & \mathrm{~F} \\ & \mathrm{C} \\ & \mathrm{C} \\ & \mathrm{C} \\ & \hline \end{aligned}$ | $\begin{array}{\|l} \hline P \\ P \\ P \\ P \\ P \\ P / A \\ P / A \\ P / A \\ P / A \\ \hline P \\ \hline P \end{array}$ | No No No No No No No No Yes Yes Yes No No | $\mathrm{C} / 0$ C $\mathrm{C} / 0$ C C $\mathrm{C} / 0$ $\mathrm{~S} / 0$ $\mathrm{~S} / 0$ $\mathrm{~S} / 0$ $\mathrm{~S} / 0$ $\mathrm{C} / 0$ $\mathrm{C} / 0$ C $\mathrm{C} / 0$ | $\begin{aligned} & \text { A } \\ & \text { A } \\ & \text { A } \\ & \text { A } \\ & \text { A } \end{aligned}$ | Velvet <br> Velvet <br> Volvet <br> Velvet <br> Velvet <br> Cloth <br> Cloth <br> Cloth <br> Cloth <br> Cloth <br> Cloth <br> Cloth <br> Cloth | $\begin{aligned} & 10 \\ & 10 \\ & 9 \\ & 9 \\ & 7 \\ & 5 \\ & 5 \\ & 5 \\ & 5 \\ & 11 \\ & 11 \\ & 9 \\ & 9 \end{aligned}$ | $\begin{array}{r} 429.00 \\ 389.00 \\ 339.00 \\ 299.00 \\ 199.00 \\ 149.00 \\ 99.00 \\ 59.00 \\ 69.00 \\ 499.00 \\ \\ 339.00 \\ 299.00 \\ 339.00 \end{array}$ | $\dagger$ At 115 dB．Dittuse－fieid EQ； replaceable cushion cover． $\dagger$ At 115 dB．As above；closed back． <br> †At 114 dB ．Dlthuse－fieid EQ； replacaable cushion cover． †At 114 dB ．As above；closed back． <br> $\dagger$ At 114 dB ．Olftuse－field EQ； replaceable cushion cover． <br> tÂt 122 dB ． <br> tAt 118 dB ． <br> tat 118 dB ． <br> $\dagger$ At 118 dB．Stereo／mono <br> switch． <br> Cordiess；inciudes is－790 infrared transmitter；stereo／ mono switch． As above． <br> †At 116 dB ．Dittuse－field $\mathbf{E Q}_{\text {；}}$ closed back． <br> tAt 116 dB ．Olftuse－field EQ． |
| CALPAD | $\begin{aligned} & 15-148 \\ & 15-120 \\ & 15-116 \\ & 15-135 \\ & 15-145 A \\ & 15-118 \\ & 15-110 \\ & 15-147 \\ & 15-146 \end{aligned}$ | Dynamic Dynamic Dynamic Dynamic <br> Dynamic Dynamic Dynamic Dynamic | $\begin{aligned} & 18-22 \\ & 20-22 \\ & 25-20 \\ & 20-18 \\ & 20-20 \\ & 20-20 \\ & 20-20 \\ & \\ & 20-22 \end{aligned}$ | $\begin{array}{\|l} 600 \\ 40 \\ 32 \\ 4-16 \\ 4-32 \\ 4-16 \\ 32 \\ 4-32 \\ 4-32 \end{array}$ | $\begin{array}{\|l} 105 \\ 105 \\ 95 \\ 100 \end{array}$ | 300 mW <br> 100 mW <br> 100 mW <br> 100 mW |  | $\begin{aligned} & 6 \\ & 7 \\ & 7 \\ & 10 \\ & 5 \\ & 6 \\ & 4 \\ & 4 \\ & 5 \end{aligned}$ | แルルールソルュル | $\begin{array}{\|l} \hline \mathbf{P} \\ \mathbf{P} \\ \mathbf{P} \\ \mathbf{P} \\ M \\ \mathbf{P} \\ M / A \\ M \\ M / A \end{array}$ | Yes <br> Yes | $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & 0 \\ & C \\ & 0 \\ & C \\ & 1 \\ & 1 \\ & 1 \\ & 0 \end{aligned}$ | $\begin{array}{\|l} \hline A \\ A \\ A \\ A \\ A \\ A \\ A \\ N \\ N \\ N \end{array}$ |  | $\begin{aligned} & 6.5 \\ & 5.7 \\ & 3.9 \\ & 2 \\ & 0.9 \end{aligned}$ | $\begin{array}{r} 65.00 \\ 38.00 \\ 29.00 \\ 15.00 \\ 6.00 \\ 25.00 \\ 12.00 \\ 5.00 \\ 6.00 \end{array}$ |  |
| daiawave | WH－200 |  | 80－10 | 40 | 50 | 5 V |  |  |  | m | Yes | C／O | A | Foam | 5 | 89.95 | Wireless． |
| DENON | AH－D950 <br> AH－D750 <br> AH－D650 <br> AH－D550 <br> AH－D350 <br> AH－D210 | Dynamic Dynamic Dynamic Dynamic Dynamic Dynamic | $\begin{aligned} & 2-31 \\ & 2-30 \\ & 3-29 \\ & 3-28 \\ & 3-26 \\ & 5-26 \end{aligned}$ | $\begin{aligned} & 30 \\ & 30 \\ & 35 \\ & 35 \\ & 32 \\ & 32 \end{aligned}$ | $\begin{aligned} & 106 \\ & 106 \\ & 106 \\ & 106 \\ & 104 \\ & 104 \end{aligned}$ | $\begin{aligned} & 6.7 \mathrm{~V} \\ & 6.7 \mathrm{~V} \\ & 6.5 \mathrm{~V} \\ & 6.5 \mathrm{~V} \\ & 5 \mathrm{~V} \\ & 5 \mathrm{~V} \end{aligned}$ |  | $\begin{array}{\|l} \hline 10 \\ 10 \\ 10 \\ 10 \\ 10 \\ 10 \end{array}$ | $\begin{array}{\|l} \hline \mathbf{F} \\ \mathbf{F} \\ \mathbf{F} \\ \mathbf{F} \\ \mathbf{F} \end{array}$ | $M / A$ $M / A$ $M / A$ $M / A$ $M / A$ $M / A$ | No No No No No No No | $\begin{aligned} & \text { C } \\ & \text { C } \\ & \text { C } \\ & \text { C } \\ & \text { C } \end{aligned}$ | $\begin{aligned} & \mathrm{A} \\ & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \end{aligned}$ | Vinyl Vinyl Vinyl Vinyl Vinyl Vinyl | $\begin{array}{\|l} \hline 9 \\ 9 \\ 7 \\ 7 \\ 7.5 \\ \mathbf{7 . 5} \\ \mathbf{5 . 6} \end{array}$ | $\begin{array}{r} 150.00 \\ 125.00 \\ 100.00 \\ 75.00 \\ 60.00 \\ 50.00 \end{array}$ |  |

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| AlWA | XK-S9000(RI) <br> AD-F810(RI) | $\begin{aligned} 13-23 & \pm 3 \\ 15-20 & \pm 3 \end{aligned}$ | Yes <br> Yes | $\begin{aligned} & 0.018 \\ & 0.035 \end{aligned}$ |  | $\begin{array}{\|l\|} \hline 80 \\ 78 \\ \hline \end{array}$ | $\begin{aligned} & \mathrm{B} / \mathrm{C} / / \\ & \mathrm{S} / \mathrm{H} \\ & \mathrm{~B} / \mathrm{C} / \mathrm{H} \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { M } \\ & \text { M } \end{aligned}$ | 3 <br> 3 | $\begin{aligned} & \text { No } \\ & \text { Yes } \\ & \hline \end{aligned}$ | No <br> No | $\begin{aligned} & \text { PH } \\ & \text { PH } \end{aligned}$ | $E$ $E$ |  | $\begin{aligned} & 1 \\ & 0 \end{aligned}$ | No <br> No | $\left[\begin{array}{l} 31 \\ 11.2 \end{array}\right.$ | $\begin{array}{r} 1150.00 \\ 400.00 \\ \hline \end{array}$ | Built-in D/A converter. |
| ARCAM | Deita 100(RO) | 20-20 $\pm 3$ |  | 0.07 | 66 | 88 | B/C/S | M | 3 | No | No | PH | E | No | 0 | No | 17 | 1800.00 |  |
| BANG 8 OLUFSEN | Beocord 7000 Beocerd 4500 | $\begin{aligned} & 30-18 \pm 3 \\ & 30-18 \pm 3 \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{aligned} & 0.09 \\ & 0.09 \\ & \hline \end{aligned}$ | $\begin{array}{\|l} 55 \\ \mathbf{5 5} \\ \hline \end{array}$ | $\begin{aligned} & 74 \\ & 66 \\ & \hline \end{aligned}$ | $\begin{aligned} & \mathrm{B} / \mathrm{C} / \mathrm{H} \\ & \mathrm{~B} / \mathrm{H} \end{aligned}$ | $\mathbf{A}$ | $\begin{aligned} & 3 \\ & 3 \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & Y_{e s} \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{array}{\|l} \hline \mathbf{P} / \mathbf{P H} \\ \mathbf{P} \\ \hline \end{array}$ | T | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | 1 | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{aligned} & 18.4 \\ & 9.9 \end{aligned}$ | $\begin{array}{r} 1250.00 \\ 900.00 \\ \hline \end{array}$ |  |
| $\begin{aligned} & \text { CAMBRIDGE } \\ & \text { AUDIO } \end{aligned}$ | CT50(R0) | 30-16 $\pm 3$ | No | 0.07 | 55 | 75 | B/C/H | A | 3 | No | No |  | T | No |  |  | 9.7 | 499.95 |  |
| Carver | TD-1770(RI) <br> TDR-2400(RI) <br> TDR-1550(RI) | $\begin{aligned} & 20-19 \\ & +2,-3 \\ & 30-19 \pm 3 \\ & 20-18 \pm 3 \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \mathrm{No} \\ & \mathrm{No} \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline 0.05 \\ 0.08 \\ 0.05 \\ \hline \end{array}$ |  | $\begin{aligned} & 75 \\ & 74 \\ & 75 \end{aligned}$ | $\begin{aligned} & \mathrm{B} / \mathrm{C} / \mathrm{H} \\ & \mathrm{~B} / \mathrm{C} / \mathrm{H} \\ & \mathrm{~B} / \mathrm{C} / \mathrm{H} \end{aligned}$ | $\begin{aligned} & \mathbf{M} \\ & \mathbf{M} \\ & \mathbf{M} \\ & \hline \end{aligned}$ | $\begin{aligned} & 3 \\ & 3 \\ & 3 \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \text { No } \\ & \hline \end{aligned}$ | $\begin{aligned} & \mathbf{P} \\ & \mathbf{P} \\ & \mathbf{P} \\ & \hline \end{aligned}$ | $\begin{array}{\|l} \mathbf{E} \\ \mathbf{E} \\ \hline \end{array}$ | No <br> Yes Yes | $\begin{array}{\|l\|} \hline 0 \\ 2 \\ \hline \end{array}$ | No <br> Yes <br> No | $\begin{aligned} & 15 \\ & 16 \\ & 15 \\ & \hline \end{aligned}$ | $\begin{aligned} & 599.95 \\ & 499.95 \\ & 459.95 \\ & \hline \end{aligned}$ | High-speed dubbing. |
| DENON | DRW-840 <br> DRW-660 <br> DRR-730 <br> DRS-810 <br> DRM-710 <br> DRS-610 <br> DRM-540 | $\begin{aligned} & 20-18 \pm 3 \\ & 20-18 \pm 3 \\ & 20-19 \pm 3 \\ & 20-20 \pm 3 \\ & \\ & 20-20 \pm 3 \\ & 25-18 \pm 3 \\ & 25-18 \pm 3 \\ & \hline \end{aligned}$ | No No No Yes Yes No No | $\begin{array}{\|l\|} \hline 0.06 \\ 0.07 \\ 0.06 \\ 0.038 \\ 0.038 \\ 0.055 \\ 0.055 \\ \hline \end{array}$ |  | $\begin{aligned} & 74 \\ & 74 \\ & 74 \\ & 75 \\ & 75 \\ & 74 \\ & 74 \\ & \hline \end{aligned}$ | B/C/H <br> B/C/H B/C/H B/C/H <br> B/C/H B/C/H B/C/H | M <br> M <br> M M <br> M <br> M | $\begin{aligned} & 3 \\ & 3 \\ & 3 \\ & 3 \\ & \hline 3 \\ & 3 \\ & 3 \\ & \hline \end{aligned}$ | Yes <br> Yes <br> Yes <br> Yes <br> Yes <br> Yes <br> Yas | $\begin{aligned} & \text { No } \\ & \\ & \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { No } \\ & \mathrm{No} \\ & \mathrm{No} \\ & \hline \end{aligned}$ | $\begin{array}{\|l} \mathbf{P} \\ \mathbf{P} \\ \mathbf{P} \\ \mathbf{P} / \mathbf{P H} \\ \\ \mathbf{P} / \mathbf{P H} \\ \mathbf{P} \\ \mathbf{P} \\ \hline \end{array}$ | $\begin{aligned} & T \\ & T \\ & T \\ & E / R \\ & E \\ & E / R \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \\ & \text { No } \\ & \\ & \mathrm{No} \\ & \mathrm{No} \\ & \mathrm{No} \\ & \hline \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \mathrm{Yes} \\ & \mathrm{No} \\ & \mathrm{No} \\ & \mathrm{No} \\ & \mathrm{No} \\ & \mathrm{No} \\ & \mathrm{No} \\ & \hline \end{aligned}$ |  | $\begin{aligned} & 400.00 \\ & \\ & 300.00 \\ & 300.00 \\ & 500.00 \\ & \\ & 400.00 \\ & 300.00 \\ & 250.00 \\ & \hline \end{aligned}$ | Hlgh-speed dubbing; twin and relay record; relay play. High-speed dubbing; relay play. <br> Horizontal loading; dual capstan. <br> Dual capstan. <br> Horlzonial loading. <br> CD sync. |
| DUAL | CC 5850 RC (R1) CC 8065 RC (Ri) | $\begin{aligned} & 25-19 \\ & 25-15 \end{aligned}$ | $\begin{aligned} & \hline \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & 0.05 \\ & 0.06 \end{aligned}$ | $65$ $65$ | $\begin{aligned} & 75 \\ & 73 \end{aligned}$ | B/C/H B/C/H | A A |  | Yes |  | $\begin{aligned} & \text { PH } \\ & \text { PH } \end{aligned}$ | $\begin{aligned} & E / R \\ & E / R \end{aligned}$ |  |  |  | 13 <br> 12 | 505.00 440.00 | Two motors. As above. |
| ELITE | $\begin{aligned} & \text { CTW•53 } \\ & \text { CT-43 } \end{aligned}$ | $\begin{aligned} & 20-20 \\ & 15-21 \end{aligned}$ | Yes | $\begin{aligned} & 0.07 \\ & 0.023 \end{aligned}$ | $\begin{aligned} & 57 \\ & 60 \end{aligned}$ |  | $\begin{aligned} & \mathrm{B} / \mathrm{C} / \mathrm{H} \\ & \mathrm{~B} / \mathrm{C} / \\ & \mathrm{S} / \mathrm{H} \\ & \hline \end{aligned}$ | A |  | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ |  | A NPH | $\begin{aligned} & E / R \\ & E / R \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \end{aligned}$ | Yes No | $\begin{aligned} & 11 \\ & 16 \end{aligned}$ | $\begin{aligned} & 460.00 \\ & 650.00 \end{aligned}$ | High-speed dubbing. |
| FISHER | CRW983 CRW683 | $\begin{array}{r} 50-17 \pm 3 \\ 50-15 \pm 3 \\ \hline \end{array}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \\ & \hline \end{aligned}$ | $\begin{aligned} & 0.12 \\ & 0.18 \\ & \hline \end{aligned}$ | $\begin{aligned} & 54 \\ & 54 \\ & \hline \end{aligned}$ | $\begin{array}{r} 70 \\ 62 \\ \hline \end{array}$ | $\begin{aligned} & B / C / H \\ & B \end{aligned}$ | $\begin{aligned} & \mathbf{A} \\ & \mathbf{A} \\ & \hline \end{aligned}$ | $\begin{aligned} & 3 \\ & 3 \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \mathrm{Ho}_{0} \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{aligned} & \mathbf{P} \\ & \mathbf{P} \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline \mathbf{E} \\ \hline \end{array}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{array}{\|l\|} 0 \\ 0 \\ \hline \end{array}$ | Yas <br> Yes | $\begin{array}{\|l\|} \hline 9.4 \\ 8.7 \\ \hline \end{array}$ | $\begin{array}{r} 199.95 \\ 149.95 \\ \hline \end{array}$ | High-speed dubbing. As above. |
| HARMAN KARDON | TD4200 <br> TD4400 <br> DC5300 | $\begin{aligned} & 20-20 \\ & \pm 31 \\ & 20-20 \\ & \pm 31 \\ & 20-18 \pm 3 \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{aligned} & 0.05 \\ & 0.05 \\ & 0.06 \end{aligned}$ | $\begin{array}{\|l\|} \hline 57 \\ 57 \\ 57 \end{array}$ | $\begin{aligned} & 73 \\ & 73 \\ & 73 \end{aligned}$ | B/C <br> B/C/H <br> B/C | M <br> M <br> M | $3$ $3$ $3$ | No <br> No <br> No | No <br> Yes <br> No | $\begin{aligned} & \mathbf{P} \\ & \mathbf{P} \\ & \mathbf{P} \end{aligned}$ | $\begin{aligned} & E \\ & E \\ & E \end{aligned}$ | No <br> No <br> Yes | $\begin{aligned} & 0 \\ & 0 \\ & 0 \end{aligned}$ | No <br> No <br> Yes | $\begin{aligned} & 11.9 \\ & 11.9 \\ & 17.2 \end{aligned}$ | $\begin{aligned} & 329.00 \\ & 449.00 \\ & 549.00 \end{aligned}$ | tat 0 VU. <br> One-touch normal and highspeed dubbing; sync dub with auto reverse. |
| JVG | TDV1050TN TDV661TN IDR441TN IDW805TN TDW709TN TDW309TN <br> TDW209TN | $\begin{aligned} & 10-23 \pm 3 \\ & 10-21 \pm 3 \\ & 20-17 \pm 3 \\ & 20-17 \pm 3 \\ & 20-17 \pm 3 \\ & 20-17 \pm 3 \\ & 20-17 \pm 3 \\ & \hline \end{aligned}$ | Yes <br> Yes <br> No <br> No <br> No <br> No <br> No | $\begin{aligned} & 0.022 \\ & 0.035 \\ & 0.08 \\ & 0.08 \\ & 0.08 \\ & 0.08 \\ & 0.08 \\ & \hline \end{aligned}$ | 61 <br> 59 <br> 58 <br> 58 <br> 58 <br> 58 <br> 58 |  | B/C/H <br> B/C/H <br> B/C/H <br> B/C/H <br> B/C/H <br> B/C/H <br> B/C/H | A/M A/M A/M $A / M$ $A$ $A$ $A$ $A$ | $\begin{aligned} & \mathbf{3} \\ & \mathbf{3} \\ & \mathbf{3} \\ & \mathbf{3} \\ & \mathbf{3} \\ & \mathbf{3} \\ & \mathbf{3} \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \\ & \text { No } \\ & \hline \end{aligned}$ | $\begin{aligned} & \mathrm{No} \\ & \mathrm{No} \\ & \mathrm{No} \\ & \mathrm{No} \\ & \mathrm{No} \\ & \mathrm{No} \\ & \mathrm{No} \\ & \hline \end{aligned}$ | A/PH <br> APH <br> NPH <br> NPH <br> A <br> A <br> A | $E / R$ $E$ $E$ $E$ $E$ $T$ $T$ | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{array}{\|l\|l\|} \hline 0 \\ 0 \\ 0 \\ 0 \\ 1 \\ 1 \\ 0 \\ \hline \end{array}$ | No <br> No <br> No <br> Yes <br> Yes <br> Yes <br> Yes | $\begin{aligned} & 17 \\ & 11.5 \\ & 10.2 \\ & 12.2 \\ & 11.5 \\ & 10.9 \\ & 10.9 \end{aligned}$ |  |  |
| KENWOOD | KX-5550(R1) <br> KX-W8050(A) <br> KX-W6050(RI) <br> KX-W4050(RI) | $\begin{aligned} & 20-20 \pm 3 \\ & 25-18 \pm 3 \\ & 25-18 \pm 3 \\ & \hline \end{aligned}$ | $\begin{array}{\|l} \text { Yes } \\ \text { Yes } \\ \text { Yes } \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 0.06 \\ 0.09 \\ \hline 0.09 \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 57 \\ 52 \\ 52 \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 72 \\ 68 \\ 66 \\ \hline \end{array}$ | $\begin{aligned} & B / C / H \\ & B / C / H \\ & B / C / H \\ & B / C / H \\ & \hline \end{aligned}$ | $\mathbf{A}$ |  | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \\ & \hline \end{aligned}$ | Yes <br> Yes <br> Yes <br> Yes | $\begin{array}{\|l} \hline N P \\ N P \\ A / P \\ N / P \\ \hline \end{array}$ | $\begin{aligned} & \hline E / R \\ & E / R \\ & T \\ & T \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \\ & \hline \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & 0 \\ & \hline \end{aligned}$ | No <br> Yes <br> Yes <br> Yes | $\begin{array}{\|l} 13 \\ 13 \\ 12 \\ 12 \\ \hline \end{array}$ | 299.00 379.00 299.00 279.00 | High-speed dubbing. As above. As above. |
| MARANTZ | SD-72(RI) <br> SD-725(RI) <br> SD-63(RI) <br> SD-525(RI) <br> SD-52R(RO) <br> SD-52(RO) | $\begin{aligned} & 15-20 \pm 3 \\ & 20-19 \pm 3 \\ & 20-18 \pm 3 \\ & 20-18 \pm 3 \\ & 30-19 \\ & 30-19 \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline \text { Yes } \\ \text { No } \\ \text { Yes } \\ \text { No } \\ \text { No } \\ \text { No } \\ \hline \end{array}$ | $\begin{aligned} & 0.03 \\ & 0.06 \\ & 0.05 \\ & 0.06 \\ & 0.06 \\ & 0.06 \\ & \hline \end{aligned}$ | 50 <br> 59 <br> 58 <br> 58 <br> 58 <br> 58 | $\begin{array}{\|r} \hline 80 \\ 79 \\ 78 \\ 78 \\ 78 \\ 78 \\ 78 \\ \hline \end{array}$ | B/C/H <br> B/C/H <br> B/C/H <br> B/C/H <br> B/C/H <br> B/C/H | M <br> M <br> M | $\begin{aligned} & \mathbf{3} \\ & \mathbf{3} \\ & 3 \\ & 3 \\ & 3 \\ & 3 \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \\ & \text { No } \\ & \text { Yes } \\ & \text { No } \\ & \text { No } \\ & \hline \end{aligned}$ | Yes Yes No No No No | $\begin{aligned} & \mathrm{PH} \\ & \mathrm{PH} \\ & \mathrm{PH} \\ & \mathrm{PH} \\ & \mathrm{PH} \\ & \mathrm{PH} \\ & \hline \end{aligned}$ | $T / E$ $T$ $T$ $T$ $T$ | $\begin{aligned} & \text { No } \\ & \text { Yes } \\ & \text { Mo } \\ & \text { Yes } \\ & \text { Yes } \\ & \text { No } \\ & \hline \end{aligned}$ | $\begin{array}{\|l} 0 \\ 0 \\ 0 \\ 1 \\ 0 \\ 0 \\ \hline \end{array}$ | No <br> Yes <br> No <br> Yes <br> No <br> No | $\begin{array}{\|l} 23 \\ 20 \\ 18 \\ 12 \\ 11 \\ 11 \\ \hline \end{array}$ | $\begin{aligned} & 599.00 \\ & 599.00 \\ & 399.00 \\ & 399.00 \\ & 349.00 \\ & 299.00 \end{aligned}$ | Dual capstan. Recording in both wells. Defeatable MPX fitter. Mike mixing. Defeatable MPX filter. As above. |
| NAD | $\begin{aligned} & 6100(\mathrm{RI}) \\ & 602 \\ & \hline \end{aligned}$ | $\begin{aligned} & 30-19 \pm 3 \\ & 35-16 \pm 3 \end{aligned}$ | $\begin{array}{\|l} \mathrm{No} \\ \mathrm{No} \\ \hline \end{array}$ | $\begin{aligned} & 0.06 \\ & 0.06 \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} 57 \\ 56 \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 77 \\ 66 \\ \hline \end{array}$ | $\begin{aligned} & \mathrm{B} / \mathrm{C} / \mathrm{H} \\ & \mathrm{~B} / \mathrm{C} \\ & \hline \end{aligned}$ | $\begin{aligned} & \mathrm{M} \\ & \text { No } \\ & \hline \end{aligned}$ | $\begin{array}{r} 3 \\ 3 \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline \text { No } \\ \text { No } \\ \hline \end{array}$ | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{array}{\|l} \hline \mathbf{P} \\ \mathbf{P} \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline T \\ \hline \end{array}$ | $\begin{aligned} & \mathrm{No} \\ & \mathrm{No} \\ & \hline \end{aligned}$ | $\begin{array}{\|l} \hline 0 \\ 0 \\ \hline \end{array}$ | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{array}{\|l\|l\|} \hline 105 / 8 \\ 93 / 4 \\ \hline \end{array}$ | $\begin{array}{r} 499.00 \\ 299.00 \\ \hline \end{array}$ |  |
| NAKAMICHI | $\begin{aligned} & \text { Dragon(RO) } \\ & \text { RX-505(RO) } \\ & \text { RX-202(RO) } \\ & \text { CR-7A(RI) } \\ & \text { DR-1(RO) } \\ & \text { DR-2(RO) } \\ & \text { DR-3(RO) } \\ & \hline \end{aligned}$ | $\begin{aligned} & 20-22 \pm 3 \\ & 20-20 \\ & 20-20 \\ & 18-21 \\ & \\ & \\ & 20-21 \\ & 20-3 \\ & 20-21 \end{aligned} \pm 3$ | $\begin{array}{\|l} \text { Yos } \\ \text { Yes } \\ \text { No } \\ \text { Yes } \\ \text { Yes } \\ \text { Yes } \\ \text { No } \\ \hline \end{array}$ | $\begin{aligned} & 0.04 \\ & 0.08 \\ & 0.11 \\ & 0.048 \\ & \\ & 0.06 \\ & 0.06 \\ & 0.11 \\ & \hline \end{aligned}$ |  | $\begin{array}{\|l\|} \hline 72 \\ 70 \\ 68 \\ 72 \\ 72 \\ 72 \\ 70 \\ \hline \end{array}$ | B/C <br> B/C <br> B/C <br> B/C <br> B/C <br> B/C <br> B/C | $\begin{array}{\|l\|} \hline \mathrm{M} \\ \mathrm{M} \\ \mathrm{No} \\ \mathrm{~A} \\ \mathrm{M} \\ \mathrm{M} \\ \mathrm{M} \\ \hline \mathbf{M} \\ \hline \end{array}$ | $\begin{aligned} & \mathbf{3} \\ & \mathbf{3} \\ & \mathbf{3} \\ & \mathbf{3} \\ & \\ & 3 \\ & 3 \\ & 3 \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { Yes } \\ & \text { No } \\ & \text { No } \\ & \\ & \text { No } \\ & \text { No } \\ & \text { No } \\ & \hline \end{aligned}$ | No <br> No <br> No <br> No <br> No No $\qquad$ | $\qquad$ | $\begin{aligned} & 1 \\ & 1 \\ & 1 \\ & 1 / E / R \\ & r \\ & 1 \\ & 1 \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { Yas } \\ & \text { Yes } \\ & \text { Yos } \\ & \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { No } \\ & \hline \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & \hline \end{aligned}$ | No <br> No <br> No <br> No <br> No <br> No <br> No | $\begin{array}{\|l} 21 \\ 22 \\ 193 / 4 \\ 193 / 4 \\ \\ 123 / 4 \\ 121 / 4 \\ 113 / 4 \\ \hline \end{array}$ | $\begin{array}{r} 2499.00 \\ 1549.00 \\ 879.00 \\ 1849.00 \\ 879.00 \\ 699.00 \\ 399.00 \\ \hline \end{array}$ | Auto azimuth correction. Flips cassette for tape reverse. As above. Manual playback azimuth adjustment. As above. |
| ONKYO | TA-201(RO) <br> TA-203(RO) <br> Integra <br> TA-207(RI) <br> integra <br> TA-2800(RI) <br> TA-R301(RO) <br> TA-R401(RI) <br> TA-RW313 <br> TA-RW414 <br> TA-RW505 <br> Integra <br> TA-RWW909 | $\begin{aligned} & 30-18 \pm 3 \\ & 30-18 \pm 3 \\ & 30-19 \pm 3 \\ & 20-20 \pm 3 \\ & 30-18 \pm 3 \\ & 30-18 \pm 3 \\ & 30-16 \pm 3 \\ & 30-16 \pm 3 \\ & 20-17 \\ & 20-17 \end{aligned}$ | No <br> No <br> Yes <br> Yes <br> No <br> No <br> No <br> No <br> Yes <br> Yes | $\begin{aligned} & 0.07 \\ & 0.07 \\ & 0.04 \\ & 0.035 \\ & 0.07 \\ & 0.07 \\ & 0.07 \\ & 0.07 \\ & 0.065 \\ & 0.065 \end{aligned}$ | $\begin{aligned} & 58 \\ & 58 \\ & 60 \\ & 60 \\ & 58 \\ & 58 \\ & 58 \\ & 58 \\ & 58 \\ & 58 \end{aligned}$ | $\begin{aligned} & 78 \\ & 78 \\ & 80 \\ & 80 \\ & 78 \\ & 78 \\ & 78 \\ & 78 \\ & 78 \\ & 78 \\ & 78 \end{aligned}$ | B/C/H <br> B/C/H <br> B/C/H <br> B/C/H <br> B/C/H <br> B/C/H <br> B/C/H <br> B/C/H <br> B/C/H <br> B/C/H | M <br> M <br> A <br> A <br> M <br> M <br> A <br> A <br> A/in | $\begin{aligned} & 3 \\ & 3 \\ & 3 \\ & 3 \\ & 3 \\ & 3 \\ & 3 \\ & 3 \\ & 3 \end{aligned}$ | No <br> Yes <br> Yes <br> Yes <br> No <br> Yes <br> No <br> Yes <br> Yes <br> Yes | No <br> Yes <br> Yes <br> Yes <br> No <br> Yes <br> No <br> No <br> No <br> No | PH <br> PH <br> PH <br> PH <br> PH <br> PH <br> P <br> P <br> NP <br> A/PH | $\begin{aligned} & 1 \\ & E / R \\ & E / R \\ & E / R \\ & 1 \\ & E / R \\ & 1 \\ & E / R \\ & 1 \\ & E / R \end{aligned}$ | No <br> No <br> No <br> No <br> Yes <br> Yes <br> Yes <br> Yes <br> Yes <br> Yes | $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \end{aligned}$ | No <br> No <br> No <br> No <br> No <br> No <br> Yes <br> Yes <br> Yes <br> Yes | $\begin{aligned} & 11 \\ & 12 \\ & 15 \\ & 14 \\ & 11.2 \\ & 11 \\ & 12.1 \\ & 13.2 \\ & 12.6 \\ & 18.1 \end{aligned}$ | 240.00 320.00 530.00 650.00 290.00 380.00 240.00 350.00 400.00 700.00 | CD sync. <br> As above. <br> Three motors; dual capstan. <br> As above; record calibration. <br> CD sync. <br> As ahove; two motors. <br> High-speed dubbing. <br> Recording in both wells. <br> Record and quick roverse in both wells; separate power supply; power loading. |
| OPTIMUS | $\begin{aligned} & \text { SCT-7500 } \\ & \text { SCI-39 } \\ & \text { SCT-5500 } \\ & \text { SCT. } 86 \\ & \hline \end{aligned}$ |  | Yes |  |  |  | $\begin{aligned} & \mathrm{B} / \mathrm{C} / \mathrm{H} \\ & \mathrm{~B} / \mathrm{C} / \mathrm{H} \\ & B \\ & B \\ & \hline \end{aligned}$ | $\begin{aligned} & \mathbf{A} \\ & \mathbf{M} \\ & \mathbf{A} \\ & \mathbf{M} \end{aligned}$ | $\begin{aligned} & \hline 3 \\ & 3 \\ & 3 \\ & 3 \\ & \hline \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{array}{\|l} \hline \mathbf{P} \\ \mathbf{P} \\ \mathbf{P} \\ \mathbf{P} \\ \hline \end{array}$ |  | Yes No No No |  | Yes <br> Yes <br> Yes <br> No |  | $\begin{array}{r} 180.00 \\ 170.00 \\ 150.00 \\ 90.00 \end{array}$ |  |
| OPTIMUS PROFESSIONAL | $\begin{aligned} & \text { SCT-52 } \\ & \text { SCT-51 } \end{aligned}$ | $\begin{aligned} & 25-16.5 \\ & 25-16.5 \end{aligned}$ | Yes Yes | $\begin{aligned} & 0.1 \\ & 0.1 \end{aligned}$ | $\begin{aligned} & 57 \\ & 57 \end{aligned}$ |  | $\begin{aligned} & \mathrm{B} / \mathrm{C} / \mathrm{H} \\ & \mathrm{~B} / \mathrm{C} / \mathrm{H} \end{aligned}$ | $\begin{aligned} & \mathrm{A} \\ & \mathrm{~A} \end{aligned}$ | $\begin{aligned} & 3 \\ & 3 \end{aligned}$ | Yes Yes | $\begin{aligned} & \mathrm{No} \\ & \mathrm{No} \end{aligned}$ | $\begin{aligned} & \mathbf{P} \\ & \mathbf{P} \end{aligned}$ |  | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{array}{\|l\|} \hline 0 \\ 0 \end{array}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & 9.2 \\ & 9.4 \end{aligned}$ | $\begin{aligned} & 229.00 \\ & 180.00 \end{aligned}$ | HIgh-speed dubbing. As above. |

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"...easiest install l've ever performed ...the model 6.5i has just become my favorite two-way speaker...the more you listen, the more you want."

Tom Nousaine, Car Stereo Review Sept/Oct ' 92
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"Advent's implementation [of ICT] brings several significant benefits to car audio...elimination of any crossover network ...greater efficiency...completely blow-proof tweeter...designed easily to fit behind stock grilles..."

Daniel Kumin, TWICE
drop-in-the-trunk
subwoofer enclosures, the pyramid-style AM ISO10 Isobarock. ${ }^{\text {™ }}$ The Isobarock's molded Nu-Stone ${ }^{\text {TM }}$ enclosure is like granite. It has dual $10^{\prime \prime}$ Tuff-Kote ${ }^{\text {TM }}$ woofers, one inside and one chrome outside, thundering up to 750 watts of the deepest bass.


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C/IT is a trademark of Goodmans Loudspeakers Limited. In Canada, call SCL Products 604-27.3-1095 (B.C.) $416-890-0298$ (ONT.).

M O B I L E A U D I O

| MANUFACTURER |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | $\qquad$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| PHILIPS | $\begin{aligned} & \text { FC-910(RO) } \\ & \text { FC-930(RO } \\ & \text { FC-950(RO) } \end{aligned}$ | $\begin{aligned} & 40-16 \\ & 40-16 \\ & 30-18 \end{aligned}$ | No <br> No <br> Yes | $\begin{aligned} & 0.07 \\ & 0.07 \\ & 0.05 \end{aligned}$ | $\begin{aligned} & 56 \\ & 57 \\ & 59 \end{aligned}$ | $\begin{aligned} & 66 \\ & 77 \\ & 79 \end{aligned}$ | B/H B/C/H $\mathrm{B} / \mathrm{C} / \mathrm{H}$ | $\begin{aligned} & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{M} \end{aligned}$ | $\begin{aligned} & \mathbf{3} \\ & \mathbf{3} \\ & \mathbf{3} \end{aligned}$ | No Yes Yes | No <br> Yes <br> Yes | APH APH APH | $\begin{aligned} & T \\ & T \\ & T / E \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ |  | Yes <br> Yes <br> Yes | $\begin{aligned} & 11.4 \\ & 11.4 \\ & 12.7 \end{aligned}$ | $\begin{array}{r} 229.95 \\ 279.95 \\ 419.95 \end{array}$ | High-speed dubbing. As above. Defeatable MPX filter. |
| PIONEER | CT-WM62R <br> (RI) <br> CT-W802R <br> CT-W602R <br> CT-W502R <br> CT-W402R <br> CT-W302R | 20-17 $\begin{aligned} & 25-16 \\ & 25-16 \\ & 25-16 \\ & 25-16 \\ & 30-16 \\ & \hline \end{aligned}$ |  | $\begin{aligned} & 0.009 \\ & \\ & 0.009 \\ & 0.1 \\ & 0.1 \\ & 0.1 \\ & 0.1 \end{aligned}$ | $\begin{array}{\|l\|} \hline \mathbf{5 8} \\ \hline \end{array}$ |  | B/C <br> B/C/H <br> B/C/H <br> B/C <br> B/C <br> B/C | $\begin{aligned} & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \end{aligned}$ | $\begin{aligned} & 1 \\ & 1 \\ & 1 \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \end{aligned}$ |  | $\begin{aligned} & \text { A } \\ & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \end{aligned}$ | $E R$ $E / R$ $E / R$ | Yes Yes Yes Yes No | $\begin{aligned} & 0 \\ & 0 \\ & 2 \\ & 0 \\ & 0 \\ & 0 \end{aligned}$ | t Yes Yes Yes Yes Yes | $\begin{array}{\|l} \hline 15 \\ 10 \\ 9 \\ 9 \\ 9 \\ 9 \\ \hline \end{array}$ | $\begin{aligned} & 500.00 \\ & \\ & 420.00 \\ & 345.00 \\ & 265.00 \\ & 245.00 \\ & 225.00 \end{aligned}$ | tOne well, six-cassette changer; other well, normal. High-speed dubbing. As above. As above. |
| ROTEL | $\begin{aligned} & \text { RD955AX } \\ & \text { RD965BX } \\ & \hline \end{aligned}$ | $\begin{aligned} & 30-18 \pm 3 \\ & 30-18 \pm 3 \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline 0.035 \\ 0.035 \\ \hline \end{array}$ | $\begin{array}{\|l\|} \mathbf{5 5} \\ \mathbf{5 5} \\ \hline \end{array}$ | $\begin{aligned} & 64 \\ & 65 \\ & \hline \end{aligned}$ | $\begin{aligned} & B / C / H \\ & B / C / H \end{aligned}$ | M | $\begin{array}{r} 3 \\ 3 \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline \text { Yes } \\ \text { Yes } \\ \hline \end{array}$ | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \hline \end{aligned}$ | $\begin{aligned} & \mathbf{P} \\ & \mathbf{P} \\ & \hline \end{aligned}$ | $\mathrm{T}$ | $\begin{aligned} & \mathrm{No} \\ & \mathrm{No} \\ & \hline \end{aligned}$ | $\begin{aligned} & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{aligned} & 10^{1 / 4} \\ & 10^{1 / 2} \\ & \hline \end{aligned}$ | $\begin{aligned} & 350.00 \\ & 400.00 \\ & \hline \end{aligned}$ |  |
| SANSUI | $0-\times 519 H \times R$ <br> D-X317WR(RO) <br> D-X117WR(RO) <br> D-X117HX(RO) <br> D-790WR(R0) <br> D-590W(RO) | $\begin{aligned} & 30-17 \pm 3 \\ & 20-19 \pm 3 \\ & \\ & 20-20 \pm 3 \\ & \\ & 20-20 \pm 3 \\ & 20-18 \\ & 40-16 \\ & 43 \\ & \hline \end{aligned}$ | No <br> Yes <br> Yes <br> Yes <br> Yes | $\begin{array}{\|l\|} \hline 0.06 \dagger \\ 0.06 \\ \\ 0.09 \\ \\ 0.06 \\ 0.09 \\ 0.2 \\ \hline \end{array}$ | $\begin{aligned} & 50 \\ & 58 \\ & \\ & 58 \\ & 58 \\ & 58 \\ & 50 \\ & \hline \end{aligned}$ | 70 75 75 75 65 60 | B/C/H B/C/H <br> B/C/H <br> B/C/H <br> B <br> B | A <br> A <br> M | $\begin{aligned} & 3 \\ & 3 \\ & \\ & 3 \\ & \\ & 3 \\ & 3 \\ & 3 \end{aligned}$ | Yes Yes Yes Yes Yes No | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \\ & \text { No } \\ & \\ & \text { No } \\ & \text { No } \\ & \text { No } \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline P / P H \\ P \\ P \\ P \\ P \\ P \\ \hline \end{array}$ | $\begin{aligned} & T \\ & T / E \\ & T \\ & T \\ & T \\ & T \end{aligned}$ | Yes <br> Yes <br> Yes <br> No <br> Yes <br> No | $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & \hline \end{aligned}$ | No <br> Yes <br> Yes <br> No <br> Yes <br> Yes | $\begin{aligned} & 9.5 \\ & 10.8 \\ & 10.5 \\ & 8.4 \\ & 10.4 \\ & 8.6 \\ & \hline \end{aligned}$ | $\begin{aligned} & 250.00 \\ & 350.00 \\ & \\ & 270.00 \\ & 230.00 \\ & 215.00 \\ & 140.00 \\ & \hline \end{aligned}$ | $\dagger$ Wtd. rms. <br> High-speed dubbing; edit dubbing; timer record and play. <br> High-speed dubbing; switchable MPX filter. |
| SHERWOOD | D06030C(RO) <br> DD4030C(RO) <br> DD3010C(RO) DD2010C(RO) | $\begin{aligned} & 20-17 \pm 3 \\ & 25-16 \pm 3 \\ & 35-16 \pm 3 \\ & \begin{array}{l} 35-15.5 \\ \pm 3 \end{array} \end{aligned}$ |  | $\begin{aligned} & 0.06 \\ & 0.06 \\ & 0.07 \\ & 0.08 \end{aligned}$ |  | $\begin{aligned} & 76 \\ & 74 \\ & 73 \\ & 72 \end{aligned}$ | B/C/H <br> B/C/H <br> B/C/H <br> B/C |  | $\begin{aligned} & 3 \\ & 3 \\ & 3 \\ & 3 \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \end{aligned}$ |  | $\begin{aligned} & P \\ & P \\ & P \\ & P \end{aligned}$ | T/ER T/E/R $T$ $T$ | Yes <br> Yes <br> Yes | $\begin{aligned} & 1 \\ & 1 \\ & 1 \\ & 0 \end{aligned}$ | Yes <br> Yes <br> Yes <br> Yes | $\begin{aligned} & 12 \\ & 11 \\ & 11 \\ & 9 \end{aligned}$ | $\begin{aligned} & 325.00 \\ & 250.00 \\ & 225.00 \\ & 140.00 \end{aligned}$ | Twin record; CD sync; auto reverse in both wells. CD sync; auto reverse in both wells. <br> Auto reverse in both wells. |
| SONY | TC-FX211 <br> TC-RX311 <br> TC-K611S <br> TC-W435 <br> TC-W535 <br> IC-W635S | $\begin{aligned} & 30-15 \pm 3 \\ & 30-15 \pm 3 \\ & 20-20 \pm 3 \\ & \\ & 30-18 \pm 3 \\ & 30-18 \pm 3 \\ & 30-18 \pm 3 \end{aligned}$ | No No Yes No No No | $\begin{aligned} & 0.07 \\ & 0.07 \\ & 0.05 \\ & 0.08 \\ & 0.08 \\ & 0.08 \end{aligned}$ | $\begin{aligned} & 58 \\ & 58 \\ & 60 \\ & \\ & 58 \\ & 58 \\ & 58 \end{aligned}$ | $\begin{aligned} & 73 \\ & 73 \\ & 75 \\ & 73 \\ & 73 \\ & 73 \\ & 82 \end{aligned}$ | B/C <br> B/C/H <br> B/C/ <br> $\mathrm{S} / \mathrm{H}$ <br> B/C H <br> B/C/H <br> 8/C/ <br> S/H | M A A/M No A A |  | No Yes Yes No Yes Yes | No No No No No No No | $\begin{aligned} & p \\ & p \\ & p \\ & p \\ & p \\ & p \end{aligned}$ | $\begin{aligned} & \text { T } \\ & E \\ & E \\ & T \\ & T \\ & T \end{aligned}$ | No <br> Yes <br> No <br> No <br> Yes <br> Yes | $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \end{aligned}$ | No No No Yes Yes Yes | $\begin{aligned} & 71 / 4 \\ & 81 / 4 \\ & 101 / 4 \\ & 91 / 2 \\ & 91 / 2 \\ & 91 / 2 \end{aligned}$ | 129.95 250.00 400.00 <br> 200.00 250.00 <br> 330.00 |  |
| SONY ES | TC-RX606ES TC-K707ES TC-K909ES TC-WR701ES IC-WR901ES | $\begin{aligned} 25-19 & \pm 3 \\ 20-21 & \pm 3 \\ 15-22 & \pm 3 \\ 30-19 & \pm 3 \\ 20-20 & \pm 3 \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \text { Yes } \\ & \text { Yes } \\ & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{aligned} & 0.06 \\ & 0.05 \\ & 0.022 \\ & 0.07 \\ & 0.06 \end{aligned}$ | $\begin{aligned} & 59 \\ & 60 \\ & 61 \\ & 59 \\ & 59 \end{aligned}$ | 83 <br> 84 <br> 85 <br> 83 <br> 83 | B/C/ <br> $\mathrm{S} / \mathrm{H}$ <br> B/C/ <br> $\mathrm{S} / \mathrm{H}$ <br> B/C/ <br> S/H <br> B/C/ <br> S/H <br> B/C/ <br> S/H | A <br> A/M <br> A/M <br> A <br> A |  | Yes <br> Yes <br> Yes <br> Yes <br> Yes | No <br> No <br> No <br> No <br> No | P <br> P <br> P <br> P <br> P | E <br> E <br> E <br> E <br> E | Yes <br> No <br> No <br> Yes <br> Yes | $\begin{aligned} & 2 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \end{aligned}$ | No <br> No <br> No <br> Yes <br> Yes | $\begin{aligned} & 10^{1 / 4} \\ & 11 \\ & 17^{1 / 2} 2 \\ & 11 \\ & 161 / 4 \end{aligned}$ | 400.00 <br> 500.00 <br> 790.00 <br> 400.00 <br> 670.00 | Recording in both wells. As above; pitch control. |
| tandberg | TCD-3014A | $\begin{array}{r} 18-23 \\ \pm 1.5 \\ \hline \end{array}$ | Yes | 0.06† |  | 74 | B/C | M |  | Yes |  | P | T/E | No | 0 |  | 21.6 | 1794.00 | $\dagger$ Wid. rms. |
| TEAC | V-8000S(RI) <br> V-7010(RI) <br> V-5010(RI) <br> V-3010(RI) <br> V-2020S <br> V-1010(R0) <br> V-510(RO) <br> $V-370(R 0)$ <br> W-6000R(RI) <br> W-800R <br> W-700R(RI) <br> W-410(RO) | $\begin{aligned} & 15-21 \pm 3 \\ & 15-21 \pm 3 \\ & 15-21 \pm 3 \\ & 15-21 \pm 3 \\ & 15-21 \pm 3 \\ & 15-21 \pm 3 \\ & 30-19 \\ & 30-16 \\ & 25-19 \\ & \\ & \\ & 25-19 \\ & 25-19 \\ & 30-16 \\ & \hline \end{aligned}$ | Yes Yes Yes Yes Yes Yes No No No No No No | 0.022 0.022 0.027 0.045 0.045 0.045 0.06 0.09 0.06 0.06 0.06 0.09 | 60 60 60 60 60 59 59 59 59 59 55 | $84$ $\begin{array}{r} 79 \\ 79 \end{array}$ | B/C/ <br> S/H <br> B/C/H <br> B/C/H <br> B/C/H <br> B/C/ <br> S/H <br> B/C/H <br> B/C/H <br> B <br> B/C/H <br> B/C/H <br> B/C/H <br> B | M <br> M <br> M <br> M <br> M <br> M <br> M <br> A <br> A <br> A | 3 <br> 3 3 3 0 <br> 3 <br> 3 3 <br> 0 <br> 0 <br> 3 | No <br> Yes <br> Yes <br> No <br> No <br> No <br> No <br> No <br> Yes <br>  <br> Yes <br> No <br> No | No No No No No No Yes No No Y Yes No No | $P / P H$ $P / P H$ $P$ $p$ $P$ $P$ $P$ $p$ $P$ $P / P H$ $P H$ $P$ | E $E$ $E$ $T / E$ $E$ $T$ $T$ $T$ $T$ | No <br> No <br> No <br> No <br> No <br> No <br> No <br> No <br> Yes <br> Yes <br> Yes <br> No | $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 2 \end{aligned}$ | $\begin{aligned} & \text { No } \\ & \\ & \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { No } \\ & \\ & \text { No } \\ & \text { No } \\ & \text { Ho } \\ & \text { Yes } \\ & \\ & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \\ & \hline \end{aligned}$ | $241 / 4$ $193 / 4$ $171 / 2$ $151 / 4$ 11 13 $61 / 2$ $61 / 2$ $14^{3} / 4$ $10^{3} / 4$ $93 / 4$ 7 | $\begin{array}{r} 1300.00 \\ 1000.00 \\ 790.00 \\ 620.00 \\ 650.00 \\ 400.00 \\ 189.00 \\ 119.00 \\ 750.00 \\ \\ 369.00 \\ 279.00 \\ 159.00 \\ \hline \end{array}$ | CD sync. <br> As above. <br> As above. <br> Dual voltage. <br> Bidirectional record and play; auto reverse in both wells; auto fade in/out. <br> Bidirectional record and play. |
| technics | $\begin{aligned} & \text { RS-TR979 } \\ & \text { RS-TR777 } \\ & \text { RS-TR333 } \\ & \text { RS-TR232 } \\ & \text { RS-BX606 } \\ & \text { RS-BR465 } \\ & \hline \end{aligned}$ | $\begin{aligned} & 20-18 \pm 3 \\ & 20-18 \pm 3 \\ & 20-17 \\ & \\ & 20-17 \\ & 30-19 \\ & 30 \\ & 30-17 \\ & \hline \end{aligned}$ | Yes <br> Yes <br> Yes <br> No | $\begin{aligned} & 0.1 \\ & 0.1 \\ & 0.1 \\ & \\ & 0.1 \\ & 0.05 \\ & 0.07 \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline 56 \\ 56 \\ 56 \\ \\ 56 \\ 57 \\ 56 \\ \hline \end{array}$ | $\begin{aligned} & 74 \\ & 74 \\ & 74 \\ & 74 \\ & 74 \\ & 74 \end{aligned}$ | B/C/H <br> B/C/H <br> B/C/H <br> B/C/H <br> B/C/H <br> B/C/H | A A $\mathbf{M}$ <br> M <br> M |  | Yes Yes <br> Yes <br> Yes <br> Yes <br> No | $\begin{aligned} & \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { No } \\ & \hline \end{aligned}$ | P <br> P PH PH | $\begin{aligned} & T \\ & T \\ & T \\ & T \end{aligned}$ | Yes <br> Yes <br> Yes <br> Yes <br> No <br> Yes | $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & 2 \\ & \hline \end{aligned}$ | Yes Yes Yes Yes No No | $113 / 4$ <br> $10^{7 / 8}$ <br> 10.6 <br> 10.6 <br> 9.5 | 419.95 319.95 219.95 199.95 299.95 219.25 | Auto reverse in both wells; high-speed editing. High-speed editing. Two motors. As above; quick reverse. |
| UHER | $\begin{aligned} & \text { CR } 1600 \\ & \text { CR } 1601 \\ & \hline \end{aligned}$ | $\begin{aligned} & 30-16 \\ & 20-19 \\ & \pm 1 \\ & \hline \end{aligned}$ | Yes <br> Yes | $\begin{aligned} & 0.3 \\ & 0.2 \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline 52 \\ 50 \\ \hline \end{array}$ | 60 | B | A | 4 | Yes Yes | Yes Yes | $\begin{aligned} & \mathbf{P} \\ & \mathbf{P} \end{aligned}$ | $\begin{aligned} & T \\ & T \end{aligned}$ | Yes No | $\begin{aligned} & 1 \\ & 1 \\ & \hline \end{aligned}$ | $\begin{array}{\|l\|} \hline \text { No } \\ \text { No } \\ \hline \end{array}$ | $\begin{aligned} & 7 \\ & 7 \\ & \hline \end{aligned}$ | $\begin{aligned} & 2179.00 \\ & 2179.00 \\ & \hline \end{aligned}$ | 8 -hour record time. As above. |
| Yamaha | KX-150 <br> KX-260(RO) <br> KX-360(RO) <br> KX-670(R0) <br> KX-R470(RO) <br> KX-W162(RO) <br> KX-W262 RO <br> KX-W362 RO) <br> KX-W952(R1) | $\begin{aligned} & 20-16 \pm 3 \\ & 20-19 \pm 3 \\ & 20-20 \pm 3 \\ & 20-21 \pm 3 \\ & 20-20 \pm 3 \\ & 20-18 \pm 3 \\ & 20-20 \pm 3 \\ & 20-20 \pm 3 \\ & 20-20 \pm 3 \end{aligned}$ | No <br> Yes <br> Yes <br> Yes <br> No <br> No <br> Yes <br> Yes <br> No | $\begin{aligned} & 0.15 \\ & 0.08 \\ & 0.05 \\ & 0.07 \\ & 0.15 \\ & 0.15 \\ & 0.08 \\ & 0.08 \\ & 0.08 \end{aligned}$ | 58 58 60 60 58 58 58 58 58 | $\begin{aligned} & 74 \\ & 74 \\ & 76 \\ & 76 \\ & 74 \\ & 74 \\ & 74 \\ & 74 \\ & 74 \end{aligned}$ | B/C <br> B/C/H <br> B/C/H <br> B/C/H <br> B/C/H <br> B/C <br> B/C <br> B/C/H <br> B/C/H | $\begin{aligned} & \mathrm{A} \\ & \mathrm{M} \\ & \mathrm{M} \\ & \mathbf{A} M \\ & \mathbf{M} \end{aligned}$ | 3 <br> Var. <br> 3 <br> 3 <br> 3 | No <br> Yes <br> Yes <br> Yes <br> Yes <br> Yes <br> No <br> Yes <br> Yes | No <br> Yes <br> Yes <br> Yes <br> Yes <br> No <br> No <br> No <br> Yes | $P$ AP NP P/PH P/PH P AP NPH P/PH | $\begin{aligned} & T \\ & T \\ & E \\ & E / R \\ & T \\ & T \\ & T \\ & E \\ & R \end{aligned}$ | No <br> No <br> No <br> No <br> Yes <br> No <br> Yes <br> Yes <br> Yes | $\begin{aligned} & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \\ & 0 \end{aligned}$ | No <br> No <br> No <br> No <br> No <br> Yes <br> Yes <br> Yes <br> Yes | $93 / 8$ $10^{3 / 8}$ $10^{5 / 8}$ $113 / 4$ $107 / 8$ $111 / 2$ $115 / 8$ $115 / 8$ $175 / 8$ | $\begin{aligned} & 219.00 \\ & 249.00 \\ & 329.00 \\ & 499.00 \\ & 379.00 \\ & 249.00 \\ & 299.00 \\ & 429.00 \\ & 729.00 \end{aligned}$ | "Playtrim" adjustment. <br> As above. <br> High-speed dubbing. <br> As above. <br> As above. <br> "Playtrim" adjustment. |

## BLAMKTAPES \& DISCS




## BLANK TAPES \& DISCS



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Audioport Ltd.
(913) 341-2222

MI, Dearborn
Almas Stereo
(313) 584-1860

NE, Omaha
Sound Environment
(402) 391-8842

NY, Nanuet
Stereo Exchange
(914) 623-3333

NY, New York
Stereo Exchange (212) 505-1111

NY, New York
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NY, Rockaway Park Hi-Fi Classics (718) $318-9618$

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Audio Atlanta
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Superior Audio Systems
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(708) $776-8888$
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(301) $929-3600$
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Almas Stereo
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MI, Grand Rapids
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MI, Kalamazoo
Classic Stereo Ltd.
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MO, St. Louis
Flip's Stereo
(314) 842-1600

NC, Raleigh
Audio Advice
(919) 881-2005

NC, Winston-Salem Platinum Audio (919) 765-1949

NJ Lawrenceville Hal's Stereo (609) 883-6339

NM, Albuquerque
Absolute Audio Store (505) 293-9092

| NY, Buffalo Speaker Shop (716) 837-1557 | TN, Knoxville Statement Audio (615) 693-0084 |
| :---: | :---: |
| NY, Rushing Lodestar Audio (718) 321-1500 | TN, Memphis Opus 2 (901) 684-5461 |
| NY, Hochester Sound Works (716) 264-0410 | TN, Nashville Nicholson's Stereo (615) 327-4312 |
| PA, Camp Hill Hi Fi House (717) 737-7775 | TX, El Paso Soundquest (915) 779-5421 |
| PA, Erie Custom Audio (814) 455-6228 | WA, Bellevue Magnolia Hi-Fi (206) 747-0850 |
| PA, Pittsburgh Audic Gallery (412) $521-9500$ | WA, Seattle <br> Magnolia Hi-Fi (206) 525-0080 |
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(714) $544-7903$
CA, Vallejo
STereo Showcase
(707) $552-1515$

Stereo Showase
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Pfianz Electionics
(712) 252-4507
IL, Hoffman Estates
Simply Stereo
(708) $882-2885$
IL, Kankakee
The Shoppe
(815) $939-4014$
IL, Normal
Sundown Audio
(309) 452-4215

| IL, Orland Park Simply Stereo (708) 403-2500 | MI, Flint <br> The Stereo Center, Inc. (313) 239-9474 |
| :---: | :---: |
| IL, Villa Park Simply Stereo (708) 629-0464 | MI , Lansing Stereo Shoppe (517) 394-4370 |
| IN, Lafayette Sound Lab, Ltd (317) 449-4211 | MN, Minneapolis The Neadle Doctor (612) 378-0543 |
| KY , Lexington Stereo Shoppe (606) 272-8020 | MO, Columbia Columba Photo \& Video (314) 443-0503 |
| MA, Boston Tweeter Etc. (617) 738-4411 | MO, St. Louis Best Sound Co. (314) $9: 97-7644$ |
| MA, Cambridge Audio Lab <br> (617) 864-1144 | MS, Starkville Ideal Acoustics 1601) 324-1020 |
| MA, Cambridge Tweeter Etc. (617) 492-4411 | NV, Las Vegas <br> Don Calley Services (702) 876-3401 |
| MA, Framingham Tweeter Etc. (508) 879-1500 | NY, Manhasset Audio Breakthroughs (516) 627-7333 |

OR, Beaverton
Magnolia Hi-Fi (503) 643-4164

OR, Clackamas
Magnolia Hi -Fi (503): 643-1280

RI, Warwick
Tweeter Etc. (401) $821-7600$

TX, Austin
Music by Design (512] 458-1667

## TX, Bryan

Sourndwaves (409) 779-0065

TX, Dallas
Acclitate Audio Video (214) 692-6597

TX, Dallas
Audio Insight
(214) 437-4167

## TX, Houston

All S:ar Audio
(713) 464-8203

VA, Bailey's X-Roads
Audio Buys
(703) 578-3033

VA, Manassas Audio Buys (703) 968-7514

VA, Richmond Audio Exchange (804) 282-0438

VA, Roanoke Sound Decision (703) 772-3873

VT, So. Burlington
Audio Den
(802) 863-4398

WA, Lynnwood
Magnolia Hi-Fi
(206) 775-7288

WA, Seattle
Magnolia Hi-Fi
(206) 575-0851

WA, Tacoma
Advanced Audio
(206) 472-3133

WA, Tacoma
Magnolia Hi-Fi
(206) 475-2330

WI, Appleton
Sound World
(414) 733-8539

MA, Worcester
$0^{\prime}$ Coins
(508) 791-3411

MI, Ann Arbor
Audio Video Showcase
(313) 665-8653

## EQUALIZERS

\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline MANUFACTURER \&  \&  \&  \&  \&  \&  \&  \&  \&  \&  \&  \&  \&  \&  \&  \&  \&  \&  \&  \&  \&  \\
\hline \begin{tabular}{l}
AB \\
INTERNATIONAL ELECTRONICS
\end{tabular} \& \[
\begin{aligned}
\& 131 \\
\& 215 \\
\& 231
\end{aligned}
\] \& \[
\begin{aligned}
\& 1 \\
\& 2 \\
\& 2
\end{aligned}
\] \& \[
\begin{aligned}
\& 31 \\
\& 15 \\
\& 31
\end{aligned}
\] \& \[
\begin{aligned}
\& 1 / 3 \\
\& 2 / 3 \\
\& 1 / 3
\end{aligned}
\] \& \begin{tabular}{l}
No \\
No \\
No
\end{tabular} \& Yes Yes Yes \& \[
\begin{aligned}
\& 20 \\
\& 20 \\
\& 20
\end{aligned}
\] \& \[
\begin{aligned}
\& 0.01 \\
\& 0.01 \\
\& 0.01
\end{aligned}
\] \& \[
\begin{aligned}
\& 110 \\
\& 110 \\
\& 110
\end{aligned}
\] \&  \& \[
\begin{aligned}
\& \text { No } \\
\& \text { No } \\
\& \text { No }
\end{aligned}
\] \& \[
\begin{aligned}
\& 6 / 12 \\
\& 6 / 12 \\
\& 6 / 12
\end{aligned}
\] \& \[
\begin{array}{|l}
\text { No } \\
\text { No } \\
\text { No }
\end{array}
\] \& \[
\begin{aligned}
\& \text { No } \\
\& \text { No } \\
\& \text { No }
\end{aligned}
\] \& \begin{tabular}{l}
No \\
No \\
No
\end{tabular} \& \[
\begin{aligned}
\& 0 \\
\& 0 \\
\& 0
\end{aligned}
\] \& \[
\begin{aligned}
\& 0 \\
\& 0 \\
\& 0
\end{aligned}
\] \& \begin{tabular}{l}
Yes \\
Yes \\
Yes
\end{tabular} \& \[
\begin{aligned}
\& \text { No } \\
\& \text { No } \\
\& \text { No }
\end{aligned}
\] \& \[
\begin{aligned}
\& 339.00 \\
\& 349.00 \\
\& 599.00
\end{aligned}
\] \& \\
\hline ANOOYNE GROUP \& \begin{tabular}{l}
Turbo. LFA \\
Mono \\
Turbo.LFA
\end{tabular} \& \[
\begin{aligned}
\& 2 \\
\& 1
\end{aligned}
\] \& \[
1
\]
\[
1
\] \& \& \& \& \& \& \& \[
\begin{aligned}
\& \text { Yes } \\
\& \text { Yes }
\end{aligned}
\] \& \[
\begin{aligned}
\& \text { Yes } \\
\& \text { Yes }
\end{aligned}
\] \& \[
\begin{aligned}
\& +6 \\
\& +6
\end{aligned}
\] \& \& \& \& \& \& \begin{tabular}{l}
Yes \\
Yes
\end{tabular} \& \& \[
\begin{array}{r}
795.00 \\
\begin{array}{c}
1595.00 \\
\text { Pair }
\end{array}
\end{array}
\] \& \begin{tabular}{l}
For B \& W Matrix 2 series speakers; balanced version, \(\$ 1095.00\). \\
For speakers as above; balanced and unbalanced.
\end{tabular} \\
\hline APOGEE SOUND \& CRQ-12 \& 2 \& 6 \& Var. \& No \& Yes \& \(t\) \& 0.003 \& 115 \& Yes \& Yes \& 15 \& No \& No \& No \& 0 \& 0 \& Yes \& No \& 2680.00 \& \(\dagger+25 \mathrm{~dB} \mu\). \\
\hline AR \& Limited Equalizer 6 \& 2 \& 6 \& Var. \& No \& Yes \& 20 \& 0.01 \& 93 \& No \& No \& \& \& No \& No \& 0 \& 0 \& No \& No \& 2800.00 \& \\
\hline AUDIO CENTRON \& \[
\begin{aligned}
\& A G-G E 215 \\
\& A G-G E 131
\end{aligned}
\] \& \[
\begin{aligned}
\& 2 \\
\& 1
\end{aligned}
\] \& \[
\begin{aligned}
\& 15 \\
\& 31
\end{aligned}
\] \& \[
\begin{aligned}
\& 2 / 3 \\
\& 1 / 3
\end{aligned}
\] \& \[
\begin{aligned}
\& \text { No } \\
\& \text { No }
\end{aligned}
\] \& \[
\begin{aligned}
\& \text { No } \\
\& \text { No }
\end{aligned}
\] \& \[
\begin{aligned}
\& \hline 15 \\
\& 15 \\
\& \hline
\end{aligned}
\] \& \[
\begin{aligned}
\& 0.01 \\
\& 0.01
\end{aligned}
\] \& \[
\begin{aligned}
\& 95 \\
\& 95
\end{aligned}
\] \& No
No \& \[
\begin{aligned}
\& \text { No } \\
\& \text { No }
\end{aligned}
\] \& \[
\begin{aligned}
\& 12 \\
\& 12
\end{aligned}
\] \& \[
\begin{aligned}
\& \text { No } \\
\& \text { No }
\end{aligned}
\] \& \[
\begin{aligned}
\& \text { No } \\
\& \text { No }
\end{aligned}
\] \& \begin{tabular}{c}
No \\
No \\
\hline
\end{tabular} \& \[
\begin{array}{|l|}
\hline 0 \\
0
\end{array}
\] \& \[
\begin{aligned}
\& 0 \\
\& 0
\end{aligned}
\] \& No Yes \& No
No \& \[
\begin{aligned}
\& 365.00 \\
\& 365.00
\end{aligned}
\] \& \\
\hline AUDIOCONTROL \& \begin{tabular}{l}
C-131 \\
R. 130 \\
The Architect \\
Octave \\
Ten \\
Series Two \\
Ten Plus \\
Series Two C-101 III \\
Richter Scale Series III
\end{tabular} \& 1
2
2
2
2
2
2
2 \& 30
30
6
10
10
10
10
6 \& \begin{tabular}{l}
Var. \\
1
1 \\
1 \\
\(1 / 2\)
\end{tabular} \& No
No
No
Yes
Yes
Yes
Yes
Yes \& Yes
Yes
No

No \& 7.5
7.5
7.5
7.5
7.5
7.5
8.0 \& 0.002
0.002
0.005
0.008
0.005
0.005
0.005

0.005 \& $$
\begin{aligned}
& 112 \\
& \\
& 120 \\
& 118 \\
& 120 \\
& 120 \\
& 120 \\
& 120
\end{aligned}
$$ \& No

No
No
No
No
No
No \& No
Yes
Yes
Yes
Yes
Yes

Yes \& | 15 |
| :--- |
| 15 |
| 15 |
| 12 15 |
| 15 |
| 15 |
| 12 | \& No

Yes
No
No
No
Yes
Yes
Yes \& No
P
No
No
No
$W$
$P$
$W$ \& No
Yes
No
No
No
Yes
Yes
Yes \& 0
0
0
0
0
0
0

0 \& \begin{tabular}{l}
1 <br>
1 <br>
1 <br>
1
1 <br>
1 <br>
1
1

 \& 

\hline$\dagger$ <br>
No <br>
$t$ <br>
Yes <br>
Yes <br>
Yes <br>
Yes <br>
Yes
\end{tabular} \& No

No
No
No
Yes
Yes
No
No \& 529.00
649.00
189.00
159.00
229.00
329.00
459.00

349.00 \& | Constant Q; balanced and RCA inputs and outputs. †Variable subsonic filter. |
| :--- |
| Real-time analyzer for model above. |
| For wall-mount speakers. $\dagger$ Variable subsonic filter. |
| Stepped warble generator; 0-dB indicator. |
| Includes 24-dB/octave crossover and bridging adaptor (see also "Crossovers"). | <br>

\hline AUDIO DESIGN ASSOCIATES \& $$
\begin{aligned}
& \text { Bass-Only } \\
& \text { EQ }
\end{aligned}
$$ \& 1 \& 1 \& Adj. \& \& \& 5 \& 0.001 \& 100 \& Yes \& Yes \& +30 \& No \& No \& No \& 1 \& \& No \& No \& 149.00 \& <br>

\hline AUDIOSOURCE \& | EQ Eight/II EQ Ten |
| :--- |
| EQ Eleven EQ Twelve | \& \[

$$
\begin{aligned}
& 2 \\
& 2 \\
& 2 \\
& 2
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 10 \\
& 12 \\
& 10 \\
& 10
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 1 \\
& 1 \\
& 1
\end{aligned}
$$
\] \& Yes Yes Yes Yes \& Yes

Yes
Yes

Yes \& $$
\begin{aligned}
& 11 \\
& 12 \\
& 6 \\
& 10
\end{aligned}
$$ \& \[

$$
\begin{aligned}
& 0.03 \\
& 0.008 \\
& 0.03 \\
& 0.015
\end{aligned}
$$
\] \& 85 99.7

$$
\begin{aligned}
& 80 \\
& 98
\end{aligned}
$$ \& No No Yes No \& \[

$$
\begin{aligned}
& \text { Yes } \\
& \text { Yes } \\
& \text { Yes } \\
& \text { No }
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 12 \\
& 12 \\
& 12 \\
& 12
\end{aligned}
$$

\] \& | Yes Yes |
| :--- |
| Yes Yes | \& No Yes No P \& | No Yes |
| :--- |
| No Yes | \& \[

$$
\begin{aligned}
& 0 \\
& 4 \\
& 0 \\
& 0
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 1 \\
& 2 \\
& 2 \\
& 2
\end{aligned}
$$
\] \& Yes

Yes
Yes

Yes \& $$
\begin{aligned}
& \mathrm{Yes} \\
& \mathrm{No} \\
& \\
& \mathrm{Yes} \\
& \mathrm{Yes}
\end{aligned}
$$ \& 159.95

429.95
199.95

299.95 \& | Auto EQ; remote controlled; reverse EQ. |
| :--- |
| Tape-to-tape dubbing. | <br>

\hline BRIGHT STAR AUDIO \& EFC \& 2 \& \& 1/3 \& No \& No \& 10.5 \& 0.02 \& \& No \& No \& \& No \& No \& No \& 0 \& 0 \& Yes \& No \& 369.00 \& For Bright Star Altair serias loudspeakers. <br>

\hline CELLO \& | Audio Palette |
| :--- |
| Palette Preamplifier | \& 2

\[
2

\] \& | 6 |
| :--- |
| 6 | \& \& | No |
| :--- |
| No | \& | No |
| :--- |
| No | \& | 15 |
| :--- |
| 9 | \& \[

$$
\begin{gathered}
0.005 \\
0.005
\end{gathered}
$$
\] \& 80

\[
80

\] \& | No |
| :--- |
| No | \& | No |
| :--- |
| No | \& \& | No |
| :--- |
| No | \& | No |
| :--- |
| No | \& | No |
| :--- |
| No | \& \[

$$
\begin{gathered}
\mathrm{N}_{0} \\
\mathrm{No}
\end{gathered}
$$

\] \& | 0 |
| :--- |
| 2 | \& | No |
| :--- |
| No | \& \[

$$
\begin{aligned}
& \text { No } \\
& \text { No }
\end{aligned}
$$

\] \& | $15,000 \text {. }$ |
| :--- |
| 6500.00 | \& | Requires extarnal power supply, Master Supply, \$3000.00; with multiple inputs, Audio Palette MIV, \$17,000. |
| :--- |
| Includes external power supply (see also "Preamps'). | <br>

\hline DB SYSTEMS \& DB-5 \& 2 \& 6 \& \& \& \& 4 \& . 0008 \& 108 \& Yes \& \& 15 \& \& \& \& \& \& \& \& 470.00 \& Model DB-2A power supply or DBP-1 cable required. <br>

\hline ELECTRO-VOICE \& $$
\begin{aligned}
& \text { EQ-131 } \\
& \text { EQ-215 } \\
& \text { EQ-231 }
\end{aligned}
$$ \& \[

$$
\begin{aligned}
& 1 \\
& 2 \\
& 2
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 31 \\
& 15 \\
& 31
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 1 / 3 \\
& 2 / 3 \\
& 1 / 3
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \text { No } \\
& \text { No } \\
& \text { No }
\end{aligned}
$$

\] \& | Yes |
| :--- |
| Yes |
| Yes | \& \[

$$
\begin{aligned}
& 7.75 \\
& 7.75 \\
& 7.75
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 0.01 \\
& 0.01 \\
& 0.01
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 97 \\
& 97 \\
& 97
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \text { No } \\
& \text { No } \\
& \text { No }
\end{aligned}
$$
\] \& Yes

Yes

Yes \& $$
\begin{aligned}
& 12 \\
& 12 \\
& 12
\end{aligned}
$$ \& \[

$$
\begin{aligned}
& \text { No } \\
& \text { No } \\
& \text { No }
\end{aligned}
$$

\] \& No No No \& No No No \& \[

$$
\begin{aligned}
& 0 \\
& 0 \\
& 0
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 0 \\
& 0 \\
& 0
\end{aligned}
$$

\] \& Yes Yes Yes \& No No No \& \[

$$
\begin{aligned}
& 464.00 \\
& 480.00 \\
& 740.00
\end{aligned}
$$
\] \& Balanced inputs and outputs. As above. As above. <br>

\hline ESOTERIC SOUND \& Re-Equalizer \& 2 \& 2 \& 10 \& No \& No \& 3.5 \& 0.02 \& 85 \& No \& No \& 16 \& No \& No \& No \& 36 \& 0 \& No \& No \& 310.00 \& For replay ol early LPs, 78s, and transcriptions. <br>

\hline GEMIN 1 SOUND PRODUCTS \& $$
\begin{aligned}
& \text { PVX-30 } \\
& \text { PVX-31 }
\end{aligned}
$$ \& \[

$$
\begin{aligned}
& 2 \\
& 1
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 15 \\
& 31
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 2 / 3 \\
& 1 / 3
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \text { No } \\
& \text { No }
\end{aligned}
$$

\] \& Yes Yes \& \[

$$
\begin{aligned}
& 5.5 \\
& 5.5
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 0.03 \\
& 0.03
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 90 \\
& 90
\end{aligned}
$$

\] \& \& \& \[

$$
\begin{aligned}
& 12 \\
& 12
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \text { No } \\
& \text { No }
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \text { No } \\
& \text { No }
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \text { No } \\
& \text { No }
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 0 \\
& 0
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 0 \\
& 0
\end{aligned}
$$

\] \& Yes Yes \& \[

$$
\begin{aligned}
& \text { No } \\
& \text { No }
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 258.00 \\
& 375.00
\end{aligned}
$$
\] \& <br>

\hline HARMAN KARDON \& EQ-8 \& 2 \& 10 \& 1/3 \& Yes \& Yes \& 2 \& 0.02 \& $\dagger$ \& No \& \& 12 \& No \& No \& No \& 0 \& 1 \& tt \& No \& 349.00 \& $\dagger 105 \mathrm{~dB}$ re: 0.5 V out. $\dagger \dagger$ Variable subsonic filter. <br>

\hline HARRISON LABORATORIES \& SA MOD EQ MOD \& $$
\begin{aligned}
& \dagger \\
& \dagger
\end{aligned}
$$ \& \[

$$
\begin{aligned}
& 30 \\
& 30
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 1 / 3 \\
& 1 / 3
\end{aligned}
$$

\] \& | No |
| :--- |
| No | \& No No \& \[

$$
\begin{aligned}
& 6 \\
& 6
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 0.05 \\
& 0.05
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 90 \\
& 90
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \text { No } \\
& \text { No }
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \text { No } \\
& \text { No }
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& -15 \\
& -15
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \text { Yes } \\
& \text { No }
\end{aligned}
$$
\] \& $P$

No \& $$
\begin{aligned}
& \text { Yes } \\
& \text { No }
\end{aligned}
$$ \& \[

$$
\begin{aligned}
& 0 \\
& 0
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 0 \\
& 0
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \text { Yes } \\
& \text { Yes }
\end{aligned}
$$

\] \& | No |
| :--- |
| No | \& \[

$$
\begin{aligned}
& 459.95 \\
& 349.95
\end{aligned}
$$
\] \& $\dagger$ Two inputs, four outputs. Includes spectrum analyzer. Requires $120-\mathrm{V}$ adaptor. <br>

\hline
\end{tabular}

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We are the best because of our pro sound heritage, passion for musical pleasure, quest for the highest possible quality, and adherence to our principles for the last 16 years. Built in the USA. Five year warranty.


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## EQUALIZERS



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## MITerminator $2^{\text {mw }}$

## MITerminator $3^{\text {™ }}$

## MITerminator $4^{\text {Tw }}$



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The GSP-560 expands your two-channel audio system into a full five/six-channel home theater. Multiple surround modes, user selectable time delay and a full-featured remote give you the control and convenience to create a sonic experience that surpasses anything you've ever heard in a movie theater.

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The GSP-560 gives you a choice of
Dolby Pro Logic, Concert Hall,


## e

 got a little
## away.


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## Ambience \& SURROund Sound Processors

| MATRIX CDOE <br> A. Ambisonic D-Dolby Surr DP—Dolby Pro DM-Dynaco SO-SO 0-Dther <br> MANUFACTURER | nd ogic <br> trix |  | — |  |  |  | UN | TYP |  |  | DFI |  |  |  |  |  |  | OUTPUT CDOE <br> 2F-Left \& Right Front <br> 3F-Left, Center, \& Right Front 2B-Left \& Right Back <br> 3B-Left, Center, \& Right Back 2S_Left \& Right Sides SW-Subwooter |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| FOSGATEAUDIONICS (Continued) | Four <br> Five | OP/D <br> DP/0 |  | $\begin{aligned} & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & 3 F_{,} 2 B, \\ & S W \\ & 3 F, 2 B . \\ & S W \end{aligned}$ | 15-45 <br> 15-45 |  |  |  | $\begin{aligned} & 0.05 \\ & 0.05 \end{aligned}$ | $\begin{aligned} & 100 \\ & 100 \end{aligned}$ | 45 <br> 45 | Yes <br> Yes | 1 <br> 1 | Yes <br> No | $\begin{aligned} & 999.00 \\ & 599.00 \end{aligned}$ |  | AV preamp. |
| HARMAN KARDON | $A V P-1 A(R I)$ <br> AVP-2(RI) <br> AVR30(RI) <br> AVR15(RI) | DP/DM/ <br> D <br> DP/DM/ <br> 0 <br> DP/0 <br> DP | D/R <br> D/R <br> D <br> D | F/C/P/D <br> F/C P/O <br> F/0 | 3F, 2B, 2 S 4SW <br> 3F, 2B, SW $3 F, 2 B$, 2SW <br> 3F, 2B | 15-45 <br> 15-45 <br> 15-30 <br> 15-30 | 9 <br> 7 <br> 20 | V/S <br> V/S <br> v | $\begin{aligned} & 50 \times 3, \\ & 20 \times 2 \\ & 30 \times 3, \\ & 10 \times 2 \end{aligned}$ | $\begin{aligned} & 0.05 \\ & 0.05 \\ & 0.09 \\ & 0.09 \end{aligned}$ | 95 <br> 90 <br> 98 <br> 98 | 50 <br> 50 <br> 70 <br> 70 | Yes <br> Yes <br> Yes <br> No | 1 <br> 1 <br> 4 <br> 2 | 6 <br> 6 <br> 6 <br> 3 | $\begin{array}{r} 2795.00 \\ 1049.00 \\ 1099.00 \\ 699.00 \end{array}$ |  | gital servo logic; THX certified. <br> gital servo logic. <br> -screen TV display. |
| JVC | XPA1010(RI) <br> SUA400(RI) SUA3O | $0$ $\begin{aligned} & \mathrm{D} / 0 \\ & \mathrm{D} / 0 \end{aligned}$ | $\begin{aligned} & \text { D/R } \\ & \mathbf{D} \\ & \mathbf{D} \end{aligned}$ | F/0 <br> F/P F/P | $\begin{aligned} & 4 F, 2 B \\ & 2 F, 2 B \\ & 2 F, 2 B \end{aligned}$ | $\begin{aligned} & 0-200 \\ & 15-30 \\ & 15-30 \end{aligned}$ | $20$ $\begin{aligned} & 2 \\ & 2 \end{aligned}$ | V/s | $10 \times 2$ $10 \times 2$ | $\begin{aligned} & 0.002 \\ & 0.5 \\ & 0.5 \end{aligned}$ | 110 <br> 85 <br> 85 |  | No <br> Yes <br> Yes | $1$ $\begin{aligned} & 1 \\ & 1 \end{aligned}$ | No <br> No <br> No | $\begin{array}{r} 1200.00 \\ \\ 305.00 \\ 235.00 \end{array}$ |  | mpensation for tistening room size, tening room reverb time, and source erb. |
| KENWOOD | $\begin{aligned} & \text { SS-992(RO) } \\ & \text { SS-592 } \end{aligned}$ | $\begin{aligned} & \mathrm{DP} \\ & \mathrm{D} \end{aligned}$ | $\begin{aligned} & \mathbf{0} \\ & \mathbf{D} \end{aligned}$ |  | $\begin{aligned} & \text { 3B } \\ & \text { 2B } \end{aligned}$ | $\begin{aligned} & 20-30 \\ & 20-30 \end{aligned}$ | $\begin{aligned} & 2 \\ & 2 \end{aligned}$ | $\mathbf{V}$ | $1{ }^{\dagger} 10 \times 2$ | $\begin{aligned} & 0.9 \\ & 0.9 \end{aligned}$ | $\begin{aligned} & 95 \\ & 62 \end{aligned}$ |  | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ |  | $\begin{aligned} & \text { No } \\ & \text { No } \end{aligned}$ | $\begin{aligned} & 299.00 \\ & 199.00 \end{aligned}$ |  | enter, 35 watts; rear, 15 watts $\times 2$. |
| KINERGETICS RESEARCH | KSP-2(RT) | DP/D | 0 | F/D | ${ }_{\text {SF }}^{\text {SF }}$. 28. | 10-40 | 0 | 0 |  | 0.01 | 92 | 80 | No | 0 | No | 4500.00 |  | HX certified; 18-bit digital signal rocessing; Class A; lor use with (SP-3 AN preamp. |
| LEXICON | $\begin{aligned} & C P-1+(R I) \\ & C P-2(R I) \\ & C P-3(R I) \end{aligned}$ | D/DP/0 <br> D/DP/0 <br> D/DP/0 | $\begin{aligned} & D R \\ & 0 \\ & D / R \end{aligned}$ | F/P/O <br> F/P/0 <br> F/P/0 | 3F, 2B, <br> 2S, SW <br> 3F, 2B, <br> SW <br> 3F, 2B, <br> 2S, SW | $\begin{aligned} & t \\ & 16-32 \\ & \dagger \end{aligned}$ | $27$ $9$ | V/S <br> V/S |  | $\begin{aligned} & 0.05 \\ & 0.05 \\ & 0.025 \end{aligned}$ | $\begin{aligned} & 85 \\ & 85 \\ & 90 \end{aligned}$ | 40 <br> Min. <br> 40 <br> 40 <br> MIn. | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & 1 \\ & 0 \\ & 1 \end{aligned}$ | No <br> No <br> Yes | $\begin{array}{r} 1595.00 \\ 995.00 \\ 2995.00 \end{array}$ |  | 0 mS to 14 S . Auto azimuth; auto input balance; true digital Pro Logic. As above. <br> As ahove; THX; on-screen TV display; ncludes two remotes (see also 'Preamps'). |
| LIRPA LABS | U8-1T2 | $\begin{aligned} & 0 / 0 / B \\ & 0 / D / B \\ & \mathbf{D} / \mathbf{D} \end{aligned}$ | Dt | 0 | 3F. 2F 2B, 3B, 16SW | $\dagger$ | tt |  | Var. | 50.3 | 2.5 | 1/2 | Var. | 1/2 | No | 723.93 |  | +15 mins. inbound, 20 outhound (75 on L.I.E.). $\dagger \dagger$ Presets include "Concert Hall, Coughs" and "Jazz Club, Drunks t Bar." Óptional Virtual Reality (gasperated) system, \$3.99. |
| MARANTZ | $\begin{aligned} & \text { AV-500(RI) } \\ & \text { PM-700AV } \end{aligned}$ | $\begin{aligned} & \mathrm{DP} \\ & \mathrm{DP} \end{aligned}$ | $\begin{aligned} & \mathrm{D} \\ & \mathrm{D} \end{aligned}$ | $\begin{aligned} & C / P \\ & C / P \end{aligned}$ | $\begin{aligned} & 3 F, 2 B \\ & 3 F, 2 B \end{aligned}$ | $\begin{array}{\|l\|l\|} 10-99 \\ 10-30 \end{array}$ | $\begin{aligned} & 6 \\ & 2 \end{aligned}$ |  | $\begin{aligned} & 50 \times 3, \\ & 25 \times 2 \end{aligned}$ | 0.09 |  |  | Yes No | $\begin{aligned} & 2 \\ & 2 \end{aligned}$ | Yes Yes | $\begin{aligned} & 899.00 \\ & 699.00 \end{aligned}$ |  | AV preamp; digital picture-in-picture. Universal remote. |
| MITSUBISHI | HTS-100(RI) | DP | D |  | 3F, 2B | 20 |  |  | $\begin{aligned} & 50 \times 3, \\ & 25 \times 2 \end{aligned}$ | 0.08 |  |  | No |  | No | 599.00 |  | AV network; dual center-channel output; learning remote, compatible with Mitsubishi TVs. |
| MUSEATEX AUDIO | HES-5500(RI) | 0 | D |  | 3F, 2B, 2S. SW | 16-36 |  |  |  | 0.1 | 90 |  | Yes | 1 | No | 1749.00 |  | Programmable memory. |
| NAD | 910 | DP | D |  |  |  | 3 |  |  |  |  |  |  |  |  | 599.00 |  |  |
| ONKYD | ES-600PRO (RI) <br> A-SV610PRD <br> Integra <br> A-SV810PRD <br> (RI) <br> TX-SV717PR0 <br> Integra TX- <br> SV909PR0 <br> (RI) | DP/0 <br> DP <br> DP <br> DP/0 <br> A/DP/0 | D <br> D <br> D/R <br> D/R |  | 3F, 2B <br> 3F, 2B <br> 3F, 2B, <br> 2S, SW | $\begin{aligned} & 5-40 \\ & 15-30 \\ & 15-30 \\ & 15-30 \end{aligned}$ | 3 <br> 2 <br> 5 <br> 8 | V <br> S <br> V/S | $\begin{aligned} & t \\ & \\ & 70 \times 3, \\ & 20 \times 2 \\ & 75 \times 2 \\ & \\ & 85 \times 3, \\ & 30 \times 2 \\ & 110 \times 3, \\ & 30 \times 4 \end{aligned}$ | $\begin{aligned} & 0.09 \\ & 0.08 \\ & 0.06 \\ & 0.04 \\ & 0.04 \end{aligned}$ | 80 <br> 80 <br> 80 <br> 100 |  | No | 0 <br> 2 <br> 2 <br> 2 | $\begin{aligned} & \hline \text { No } \\ & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \\ & 6 \end{aligned}$ | 400.00 630.00 1100.00 950.00 1850.00 |  | Center, 50 watts; rear, 20 watts $\times 2$. input balance control; programmable emote. <br> Multi-room/multi-source capability see also "Amplifiers"). <br> Digital sound processing; AN amp see also "Amplifiers"); S-video inputs; on-screen TV display. <br> AN receiver (see also "Receivers"). <br> AV receiver (see also "Receivers") with digital signal processing, true digital Pro Logic, and multi-room/ multi-source capability; on-screen TV display; S-video inputs; programmable remote. |
| PIONEER | SP-7000(RI) | D/DP/0 | D/R | 0 | $\begin{aligned} & 5 F_{,} 5 B, \\ & 2 S \end{aligned}$ | 10-35 | 16 | v/s |  | 0.008 | 90 |  |  |  | $\mathrm{N}_{0}$ | 735.00 |  | Oigital signal pracessing; digital seven-band EQ. |
| PROCEED | PAV(RI) | D/DP/0 | 0 | F/P/0 | ${ }_{S W}{ }_{S W}$ |  |  |  |  |  |  |  |  |  | 4 | 4000.00 |  | AV preamp (see also "Preamps"); an-screen programming; $S$-video and composite-video compatibility. |
| PROTON | SD-1000(RI) | 0 |  | F/P | $\begin{aligned} & 3 F, 3 B, \\ & S W \end{aligned}$ |  |  | v |  | 0.008 | 100 | 58 | No | 1 | No | 600.00 |  | Enhanced logic; four- to seven-channel surround. |
| SDUND CONCEPTS | SSD550 | D | D/R |  | 2F, 2B | 5-100 |  | v |  | 0.1 | 92 | 80 | Yes |  | No | 975.00 |  | Music/film mode switching. |

# COUNTERPDINT HDME CINEMA 

THE AUDIO COMPANY YOU'VE COME TO TRUST.
At last, a home theater sound system that can satisfy even the most demanding audiophile! Counterpoint, using our award-winning technology, have put together a system of matchless quality and value. Components are meticulously crafted and carefully matched in our California facility to leave the guesswork out.

## HC-808 Dolby ProLogic ${ }^{\circledR}$ <br> SurroundSound Processor

Boasting high quality parts such as Roderstein 1\% metal film resistors, Wima polypropylene capacitors and Alps motordriven potentiometers, the HC-808 offers better, more lifelike sound than others. It also features stereo subwoofer ouputs, adding impact to footsteps, gunshots and other low frequency sound effects, as well as a bypassable monitor loop for insertion of an equalizer.

## HC-818 Audio Controller

A dual-purpose audio control center, it offers fixedlevel outputs for connection to the HC-808. You can select between 7 audio sources by remote. There
are two tape loops with full dubbing. The tape outs are controlled independently from the main system outputs permitting "background" recording while listening to another source. Equally important is the audiophile-grade line stage for your separate audio-only high-fidelity sound system!

## HC-828 Video

Switcher Slaved off the HC-828, this optional video switcher offers 5 video inputs (Svideo or composite) and can be connected to
three monitors and a VCR with independend source selection for each monitor. All outputs are also S-video and composite.

## Solid 1 Power Amplifier

This amplifier, lauded as the "Best Buy" in Taiwan, and "One of the 10 Best Buys in Audio" by Bound for Sound, is the perfect amplifier for the home theater, or for a dual purpose audio/video system. Based upon FET and bipolar cascode technology, this amplifier offers an impressive 60 amps of peak current, with 100 WPC at 8 Ohms, and 170 at 4. And potentially speaker damag. ing DC offset is eliminated.

Our 7 -piece Home Cinema speaker system distinguishes itself by utilizing custom-made glass fiber cone technology for superior dynamics and clarity. Additionally, it produces bass in stereo, instead of the mono bass home theater speaker systems usually sold. The standard finish is black suede Nextel.

> The BIJOU
> Center dialogue Speaker

How often do you find yourself thinking, "What did she just say?" when watching a film? It is the all-important center dialogue channel which makes the difference here. By using drivers of a quality found in the finest audiophile systems, ultimate clarity is achieved.

The ORPMEUM Right/Left Satellite These stereo speakers are good enough to stand alone in a quality home stereo.

What they do in a home theater is simply astonishing. Their ability to localize characters and action will astound you.
$\frac{\text { The MYSTIC }}{\text { Dipolar }}$
Surround Speaker
The rear surround speakers are what gives your theater system its front to back localization and depth. Counterpoint speakers are designed to enhance the presentation with an extremely sophisticated

dipole that gives the rear signal increased ambience and depth.

These stereo subwoofers not only provide solid bass to 30 Hz , but alsoare attractive speaker stands or endtables. Finished in piano-black lacquer, these subwoofers have a built-in crossover. The versatile Embassies can enhance performance in any system.

## Counterpoint. The Audio Technology Company.

## Ambience \& Surround Sound Processors



## Subround System 5000

The Future Of Home Theater


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Check out these features:

- Analog Devices 2126 Dolby Pro Logic Processor
- On-Screen Display
- Motorized Master Volume Control Knob
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- Camcorder Input on front Panel (with S-Video)
- Multimedia I/O Port
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- Complete Line Outputs
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you feel you can reach out and touch
the music as it touches you.

## SIGNAL PROCESSORS

|  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ace audio | $\begin{aligned} & 4000 \\ & 4100 \\ & 4000-\times 24 \\ & 4100-\times 24 \end{aligned}$ | Subsonic Filter Infra/Ultrasonic Filter Subsonic Filter Infra/Ultrasonic Filter |  | R/P/F R/P/F R/P/F R/P/F | No <br> No <br> No <br> No | $\begin{aligned} & t \\ & t \\ & t \end{aligned}$ | RP RP RP RP | $\begin{aligned} & 0.002 \\ & 0.002 \\ & 0.002 \\ & 0.002 \end{aligned}$ | $\left\{\begin{array}{l} 20-20+0,-3 \\ 20-20+0,-3 \\ 20-20+0,-3 \\ 20-20+0,-3 \end{array}\right.$ | $\begin{array}{r} 98.50 \\ 101.00 \\ 132.00 \\ 142.00 \end{array}$ | $\dagger 18 \mathrm{~dB}$ /octave slope below 20 Hz . $\dagger$ Low, $18 \mathrm{~dB} / \mathrm{cctave}$ slope; high, $12 \mathrm{~dB} / \mathrm{oc}^{2}$ ave. <br> $\dagger$ Low, 24 dB/octave slope. <br> Low, $24 \mathrm{~dB} / \mathrm{cctave}$ slope; high, $12 \mathrm{~dB} / \mathrm{octave}$. |
| AUDIOCONTROL | Phase Coupled Activator | Proprietary | 0 | U | No |  | RP | 0.005 | $25-20 \pm 0.5$ | 259.00 | Restores tower trequencies; includes programmable crossover (see also "Crossovers"). |
| BROOKLINE TECHNOLOGIES | VS301 <br> Volume <br> Stabilizer | Compressar/ Limiter | 0 | U |  |  | RP | 0.05 | $20-60+0,-3$ | 129.50 | Increases low-level signals; threshold adjustable from -50 to +10 dBm ; Includes external power supply. |
| Canver | ECS-U <br> H-9AV | Sonic Hologram Generator, Sub-Bass Restoration, EQ Sonic Hologram Generator | 0 <br> 0 | U <br> $U$ |  |  | P <br> P | $\begin{aligned} & 0.1 \\ & 0.05 \end{aligned}$ | $\begin{aligned} & 5-20 \\ & +0,-0.3 \\ & 10-20 \\ & +0,-0.3 \end{aligned}$ | $\begin{aligned} & 349.95 \\ & \\ & 399.95 \end{aligned}$ | High-frequency EQ; variable bass $\mathbf{Q}$; soundstage distancing; for dipole speaker designs. <br> Dialog processor; precognition circuit; independent outputs for L-R and $L+R$. |
| OB SYSTEMS | DB-7 | Polarity Inverter/ Subsonic Filter | 0 | U |  |  | RP | 0.003 | $\begin{aligned} & 20-20 \\ & +0,-0.2 \end{aligned}$ | 205.00 | Requires DB-2A power supply, $\$ 125.00$. |
| EMSEMBLE | Subsonic Filter | Subsonic Filter |  | U |  |  | RP | 0.003 | 39-100 | 1000.00 | $25-\mathrm{Hz}$ high-pass fitter, -40 dB at 5 Hz ; includes external power supply. |
| MARANTZ | AX-1000 | Audio Computer |  | U | Yes |  |  |  | $20-20 \pm 0.1$ | 15,000. | Digital EQ, reverb, hall ambience, compander, LP scratch aliminator, tester, and spectrum analyzer; automatic digital room-acoustic compensation. |
| MARCHAND | WM8 | Bass Correction | 0 |  |  |  | P | 0.01 | 2-20 | 345.00 | For use with subwoofers and fullrange speakers; kit, \$225.00. |
| PACKBURN | 323 A | Transient, Dynamic NR | $0 \pi$ | U | No | Varies | RP | 0.05 | Sel. | 2650.00 | Mono/stereo; has three NR processors. |
| RANE | DC 24 <br> FSC 22 <br> FPL 44 | Compressor/ Limiter/ Noise Gate Compressor Limiter | $\begin{aligned} & 0 \\ & 0 \\ & 0 \end{aligned}$ | U <br> U <br> U |  |  | P <br> P <br> P | $\begin{aligned} & 0.05 \\ & 0.05 \\ & 0.03 \end{aligned}$ | $\begin{aligned} & 20-20 \\ & +0,-0.5 \\ & 20-20 \\ & +0,-0.5 \\ & 20-20 \\ & \pm 0.25 \end{aligned}$ | 599.00 <br> 399.00 <br> 389.00 | Four-channel. |
| SESCOM | P0-34 | ALC | c | U |  |  |  | 02 | $30-15 \pm 1$ | 116.25 | Requires P0-1 power supply. |
| SIGTECH | TF10 D-3(R0) | Time-Field Acoustic Correction |  | U |  |  | P | 0.0014 | $20-20 \pm 0.5$ | 4900.00 | Room measurement and calibration by dealer. |
| SNELL ACOUSTICS | ca 10 | $\dagger$ | 0 | U |  |  | RP |  |  |  | $\dagger$ Corrects time, room, and speaker trequency response in digital domain. Updatable; analog and digital inputs and outputs. |
| SOUnd CONCEPTS | $\begin{aligned} & \text { IR2100(RI) } \\ & \text { \|R2200 } \\ & \text { VSP-1 } \end{aligned}$ | Image Enhancer Image Enhancer Stereo Synthesizer | $\begin{aligned} & 0 \\ & 0 \\ & 0 \end{aligned}$ | $\begin{aligned} & \mathrm{U} \\ & \mathrm{U} \\ & \mathrm{U} \end{aligned}$ |  |  | $\begin{aligned} & \text { RP } \\ & \text { RP } \\ & \text { RP } \end{aligned}$ | $\begin{aligned} & 0.01 \\ & 0.01 \\ & 0.01 \end{aligned}$ | $\begin{array}{r} 20-25 \pm 0.1 \\ 20-20 \pm 0.3 \\ 20-20 \pm 0.3 \end{array}$ | 360.00 199.00 169.00 | Includes wired remote. Kit, Model KIR-1, $\$ 95.00$. Kit, Model KVSP-1, $\$ 90.00$. |
| SYMETRIX | 421 <br> 425 <br> 501 <br> SX208 <br> 402 <br> 564E <br> 601 <br> 528 | AGC-Leveler/ Limiter Compressor/ Limiter/ Expander Compressor/ Limiter/ Compressor <br> Digital Delay <br> Expander/ Noise Gate <br> Digital <br> Voice <br> Processor <br> Voice Processor | 0 <br> 0 <br> 0 <br> 0 <br> 0 | U <br> U <br> U <br> U <br> U <br> U <br> U <br> U |  |  |  | 0.05 <br> 0.02 <br> 0.025 <br> 0.03 <br> 0.015 <br> 0.13 <br> 0.01 <br> 0.05 | $\begin{aligned} & 20-50 \\ & 10-60+0,-3 \\ & 20-20+0,-1 \\ & 20-20+0,-1 \\ & 12-20 \pm 1.5 \\ & 20-20+0,-1 \\ & 12-20 \pm 1.5 \\ & 20-20+0,-1 \end{aligned}$ | 549.00 <br> 579.00 <br> 349.00 <br> 299.00 <br> 695.00 <br> 989.00 <br> 1995.00 <br> 679.00 | Balanced and unbalanced inputs and outputs. <br> As above; dual mono or stereo. <br> Balanced and unbalanced inputs and outputs; separate limiter. <br> Balanced and unbalanced inputs and outputs. <br> As ahove; one input, two outputs; maximum delay time, 885 ms . <br> Balanced and unbalanced Inputs and outputs; four channels; sidechain filters. <br> Mike preamp, parametric EQ, expander, de-esser, and delay; MIOIcontrolied; balanced analog inputs and outputs; digital inputs and outputs. <br> Mike preamp, parametric EQ, expander, and compressor; balanced inputs and outputs. |
| TADDEO | Digital Antidote | Time-Domain Filter |  | $\dagger$ |  |  |  |  |  | 169.95 | $\uparrow$ Corrects time-domain errors in CD playback; passive. |



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theatre effects so real that
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## CROSSOVERS

|  |  |  |  |  |  |  |  |  |  |  |  | $7$ |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| ACE AUDIO | $\begin{aligned} & 6500-\text { DSB } \\ & 6000 \\ & 6000-6 \end{aligned}$ | $\begin{aligned} & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{C} \end{aligned}$ | $\begin{aligned} & \mathrm{M} / \mathrm{S} / \mathrm{X} \\ & \mathbf{S} \\ & \mathbf{S} \end{aligned}$ | $\begin{aligned} & 2 \\ & 2 \\ & 2 \\ & 2 \end{aligned}$ | $\begin{aligned} & 30-200 \\ & 200-15 \mathrm{k} \\ & 30-18 \mathrm{k} \end{aligned}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{aligned} & \mathbf{p} \\ & \mathbf{p} \\ & \mathbf{p} \end{aligned}$ | $\begin{aligned} & S / M \\ & S / M \end{aligned}$ | Hor L Hor L Hor L | $\begin{aligned} & 90 \\ & 90 \\ & 90 \end{aligned}$ | $\begin{aligned} & 0.002 \\ & 0.002 \\ & 0.002 \end{aligned}$ | $\begin{aligned} & 1.0 \\ & 1.0 \\ & 1.0 \end{aligned}$ | $\begin{aligned} & 100 \mathrm{k} \\ & 100 \mathrm{k} \\ & 100 \mathrm{k} \end{aligned}$ | $\begin{aligned} & 100 \\ & 100 \\ & 100 \end{aligned}$ | $\begin{aligned} & 175.00 \\ & 175.00 \\ & 195.00 \end{aligned}$ | Optional subsonic filter, \$25 As above. <br> As above; transient-perfect filter. |
| AMERICAN HYBRID TECHNOLOGY | AHT/X | A | S | 2 | Custom | $\mathrm{N}_{0}$ | F |  | H | 120 | 0.005 |  | 10k | 100 | 5200.00 | Line-level preamp/crossover (see also "Preamplifiers"); optional low-pass level control; custom filter slopes; external power supply. |
| $\begin{array}{\|l} \hline \text { ANALOG } \\ \text { RESEARCH } \end{array}$ | Custom | A | S | 2 | Custom | Yes | F | S | L | 90 | 0.01 |  | 10k | 500 | $\begin{aligned} & \text { From } \\ & \mathbf{6 0 0 . 0 0} \end{aligned}$ | External power supply required. |
| APOGEE ACOUSTICS | DAX 3 | A | S | 2 | 330 | No | F | No | H/L | 100 | 0.003 | 1 | Adj. | 8 | 3295.00 | For Apogee Diva, Duetta Signature, and Centaur Major. |
| ATLAS! SOUNOOLIER | $\begin{aligned} & \text { ThundraPro } \\ & \text { CXA } \end{aligned}$ | A | X | 2 | 80-200 | Yes | $v$ | M | L |  |  |  |  |  | 599.00 | Subwoofer crossover with mono amp (see also "Amps'); reverse-polarity switching; input sensing; subsonic filler. |
| AUDIO CENTRDN | AC-X32 | A | S |  | 20-10k | Yes | V |  | H/M/L | 95 | 0.001 | 1.0 | 10k | 1k | 365.00 |  |
| AUOIOCONTROL | Phase Coupled Activator Richter Scale Series III | A | $\begin{aligned} & \mathrm{s} \\ & \mathrm{~s} \end{aligned}$ | 2 | $\begin{aligned} & 20-20 \mathrm{k} \\ & 20-20 \mathrm{k} \end{aligned}$ |  | P | S S/M/B | L | $\begin{array}{\|l\|} \hline 118 \\ 120 \end{array}$ | $\begin{aligned} & 0.005 \\ & 0.005 \end{aligned}$ | 1.0 1.0 | 100k | 150 150 | $\begin{aligned} & 259.00 \\ & 349.00 \end{aligned}$ | Proprietary bass restoration circuits; subsonic filter (see also "Signal Processors"). Linkwitz-Riley alignment; $1 / 2$-octave bass EO and analyzer (see also "Equalizers"). |
| AUDIO RESEARCH | EC-22 | A | S | 2 | Custom | Yes | P |  | L | 120 | 0.01 | 1 | 50k | 250 | 2600.00 | Frequency and slope (6, 12, or $18 \mathrm{~dB} /$ octave) selected by changing circuit cards; bypass outputs; mute switch |
| BAG END | ELF-1 Dual Integrator | A | S | 2 | 50-205 | Yes | \$ | S | H/L | 100 | 0.05 | 0.75 | 50k | 100 | 2460.00 | For Bag End D18E-I, S18E-0, and S10E-T subwooters. |
| BRYSTON | $\begin{aligned} & \hline \text { 10B-SUB } \\ & \text { 10B-Standard } \\ & \hline \end{aligned}$ | A <br> A | $\mathrm{s}$ <br> s | $\dagger$ $\dagger$ | 40-500 <br> 70-4.5k | Yes <br> Yes | $s$ <br> S | S <br> S | $\mathrm{H}$ <br> H | 90 <br> 90 | $\begin{aligned} & 0.005 \\ & 0.005 \\ & \hline \end{aligned}$ | $1$ <br> 1 | $\begin{aligned} & 20 \mathrm{k} \\ & 20 \mathrm{k} \\ & \hline \end{aligned}$ | $\begin{aligned} & 100 \\ & 100 \\ & \hline \end{aligned}$ | 1195.00 <br> 1195.00 | $\dagger$ Usable as stereo 2-way or mono 3-way. Optional Linkwitz-Riley alignment. As above. |
| CALIBRATION STANDARD INSTRUMENTS | HLE-2 | A | S/0 | 2 | 30-200 | Yes | S/P | S/M/B | 12 | 92 | 0.02 | 0.50 | 10k | 600 | 2490.00 | ELF system. |
| CAMBRIDGE SOUNDWORKS | EXO-1 | A | S |  | 55, 80, 100, 140 | No | S | M |  |  |  |  |  |  | 299.00 |  |
| $\begin{aligned} & \hline \text { CASCADE } \\ & \text { AUDIO } \\ & \text { SYSTEMS } \end{aligned}$ | BSX-18.2 | A | S/X | 2 | 45-15k | Yes | P | S/M/B | L | 92 | 0.05 | 1.0 | 100k | 250 | 459.00 | Bessel third-order slopes; low-impedance version, $\$ 499.00$. |
| CURCIO AUDIO ENGINEERING | MP-D2X0 | A | S | 2 | 60-4k | Yes | V | S | H/L | 85 | 0.006 | 0.75 | 470k | 300 | 3000.00 | $\begin{aligned} & \text { Tube; kit, ASM-D2X0, } \\ & \$ 1350.00 \text {. } \end{aligned}$ |
| DB SYSTEMS | $\begin{aligned} & \hline \mathrm{DB}-3-18 \\ & \mathrm{DB}-3.24 \\ & \mathrm{DB}-3-36 \\ & \hline \end{aligned}$ | $\begin{aligned} & \mathbf{A} \\ & \mathbf{A} \\ & \mathbf{A} \end{aligned}$ | $\begin{array}{\|l\|l\|} \hline s / X \\ s / X \\ S / X \\ \hline \end{array}$ | $\begin{aligned} & 2,3 \\ & 2 \\ & 2 \\ & \hline \end{aligned}$ | Optional Optional Optlonal | Yes <br> Yes <br> Yes | $\begin{array}{\|l\|} \hline \mathbf{F} \\ \hline \end{array}$ | $\begin{aligned} & \hline S / M / B \\ & S / M / B \\ & S / M / B \\ & \hline \end{aligned}$ | $\begin{aligned} & H / M / L \\ & H / L \\ & H L \end{aligned}$ | $\begin{array}{\|l\|} \hline 100 \\ 100 \\ 100 \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 0.0008 \\ 0.0008 \\ 0.0008 \\ \hline \end{array}$ | $\begin{aligned} & 1 \\ & 1 \\ & 1 \\ & \hline \end{aligned}$ | $\begin{aligned} & 90 k \\ & 90 k \\ & 90 k \end{aligned}$ | $\begin{aligned} & 1.4 \mathrm{k} \\ & 1.4 \mathrm{k} \\ & 1.4 \mathrm{k} \end{aligned}$ | $\begin{array}{r} \text { From } \\ 450.00 \\ 615.00 \\ 690.00 \end{array}$ | 18-d8/octave slope; 6 or 12 dB available. Linkwit-Riley alignment. 36-dB/octave slope. |
| DeCOURSEY | $\begin{aligned} & 120-84 \\ & 120-78 \\ & 120-08 \end{aligned}$ | $\begin{array}{\|l} \mathrm{A} \\ \mathrm{~A} \\ \mathrm{~A} \end{array}$ | $\begin{array}{\|l\|} \hline M / S / X \\ \\ M / S / X \\ M / S X X \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline 2 \\ 3 \\ 4 \end{array}$ | Optional <br> Optional <br> Optlonal | Yes Yes Yes | $\begin{array}{\|l\|} \hline \mathbf{P} \\ \hline \mathbf{P} \\ \hline \end{array}$ | $\begin{array}{\|l\|} \hline S / M / B \\ \\ S / M / B \\ S / M / B \\ \hline \end{array}$ | Opt. <br> Opt. Opt. | $\begin{array}{\|l} 90 \\ \\ 90 \\ 90 \end{array}$ | $\begin{aligned} & 0.002 \\ & \\ & 0.002 \\ & 0.002 \end{aligned}$ | $\begin{aligned} & 1 \\ & 1 \\ & 1 \end{aligned}$ | $\begin{aligned} & 100 \mathrm{k} \\ & \\ & 100 \mathrm{k} \\ & 100 \mathrm{k} \end{aligned}$ | $\begin{aligned} & 100 \\ & \\ & 100 \\ & 100 \\ & \hline \end{aligned}$ | $\begin{aligned} & 184.25 \\ & \\ & 288.75 \\ & 387.75 \end{aligned}$ | Optional rack and panał; optional summing circuit and subsonic filters. <br> As above. <br> As above. |
| ELECTRD-VOICE | $\begin{array}{\|l\|} \hline \text { EX-18 } \\ \text { EX-24 } \end{array}$ | A | M/S | $\dagger$ | 80-6.3k | Yes | F/P | S/M | H/M/L | 96 | 0.05 | . 775 | 15k | 100 | $\begin{aligned} & 426.00 \\ & 640.00 \end{aligned}$ | $\dagger$ Usable as stereo 2-way or mono 3-way. Balanced and unbalanced inputs and outputs; balanced impedance. 30 kilohms in and 200 ohms out; EQ for constant-directivity horn. |
|  | MF2 <br> MF3 <br> Relerence | $\begin{array}{\|l} \mathbf{P} \\ \mathbf{P} \\ \mathbf{P} \end{array}$ | $\begin{array}{\|l\|l} \hline M \\ M \\ M \end{array}$ | $\begin{array}{\|l\|l} 2 \\ 3 \\ \dagger \end{array}$ | $\begin{array}{\|l\|} \hline 40-200 \\ 40-200,100-1 k \\ \text { Adjustable } \end{array}$ | $\begin{aligned} & \text { Yes } \\ & \text { Yes } \\ & \text { Yes } \end{aligned}$ | $\begin{array}{\|l\|} \hline \mathbf{P} \\ \mathbf{p} \\ \mathbf{p} \end{array}$ | $\begin{aligned} & \mathrm{M} \\ & \mathrm{M} \\ & \mathrm{M} \end{aligned}$ | $\begin{aligned} & H / L \\ & H / M / L \\ & \dagger \end{aligned}$ | $\begin{aligned} & 120 \\ & 120 \\ & 120 \end{aligned}$ | $\begin{aligned} & 0.001 \\ & 0.001 \\ & 0.001 \end{aligned}$ |  | $\begin{aligned} & \text { Adj. } \\ & \text { Add. } \\ & \text { Adj. } \end{aligned}$ | $\begin{aligned} & \text { Adj. } \\ & \text { Adj. } \\ & \text { Adj. } \end{aligned}$ | $\begin{array}{r} 485.00 \\ 685.00 \\ \dagger \end{array}$ | $\dagger 2$ to 6 bands per channel, with plug-in level control for each band. $\dagger$ t $\$ 985.00$ to \$2350.00. Optimized for Essence Reterence 12 system (Amethyst 10A and Reterence subwooter). |
| FM ACOUSTICS | $\left\{\begin{array}{l}236-\times 100 \\ \text { MK II } \\ 236-\times 1000 \\ M K \text { II } \\ 236 / 4-3 ~ M K ~ I I ~ \\ 236 / 4-4 ~ M K ~ I I ~\end{array}\right.$ | A <br> A <br> A | S | $\begin{aligned} & 2 \\ & 2 \\ & 3 \\ & 4 \end{aligned}$ | $60-1.6 k$ $600-16 k$ $60-16 k$ $60-16 k$ | Yes <br> Yes <br> Yes <br> Yes | $\mathbf{P}$ <br> P $\mathbf{P}$ $\mathbf{P}$ | $\begin{aligned} & \hline \mathrm{S} \\ & \mathrm{~s} \\ & \hline \mathrm{M} \\ & \mathrm{M} \end{aligned}$ | H/L <br> $\mathrm{H} / \mathrm{L}$ <br> H/M/L <br> 4 | $\begin{array}{\|l\|} \hline 110 \\ 110 \\ \\ 110 \\ 110 \\ \hline \end{array}$ | $\begin{aligned} & 0.008 \\ & 0.008 \\ & \\ & 0.009 \\ & 0.009 \end{aligned}$ | $\begin{aligned} & .775 \\ & .775 \\ & \\ & .775 \\ & .755 \end{aligned}$ | 30k <br> 30k <br> 40k <br> 40k | 1 <br> 1 <br> 5 5 | $\begin{gathered} 10,980 . \\ \\ 10,980 . \\ \\ 9980.00 \\ 10,980 . \end{gathered}$ | Balanced inputs; with balanced inputs and outputs, Model 236-X1008 MK H, \$11,980. <br> Balanced inputs; with balanced inputs and outputs, 236-X1000B MK II, \$11,980. Balanced inputs and outputs. As above. |

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| MANUFACTU |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| RANE | $\begin{aligned} & \text { AC } 22 \\ & \text { AC } 23 \\ & \text { FAC } 24 \\ & \text { FAC } 28 \\ & \text { DC } 24 \end{aligned}$ | $\begin{aligned} & A \\ & A \\ & A \\ & A \\ & A \end{aligned}$ | $\begin{aligned} & \mathrm{S} \\ & \mathrm{~S} \\ & \mathrm{M} \\ & \mathrm{M} \\ & \mathrm{M} \end{aligned}$ | $\begin{aligned} & t \\ & t \\ & 2 \\ & 2 \\ & 2 \end{aligned}$ | $70-3.6 \mathrm{k}$ $70-1 \mathrm{k}, 450.7 \mathrm{k}$ $60-12 \mathrm{k}$ $60-12 \mathrm{k}$ $70-7 \mathrm{k}$ | $\begin{aligned} & \hline \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { No } \\ & \text { No } \\ & \hline \end{aligned}$ | $\begin{aligned} & \hline v \\ & v \\ & v \\ & v \\ & v \end{aligned}$ | $\begin{aligned} & M \\ & M \\ & M \end{aligned}$ | $\begin{aligned} & H / L \\ & H / M / L \\ & H / L \\ & H / L \\ & H / L \end{aligned}$ | $\begin{aligned} & 92 \\ & 92 \\ & 95 \\ & 95 \\ & 92 \end{aligned}$ | $\begin{aligned} & \hline 0.02 \\ & 0.02 \\ & 0.02 \\ & 0.02 \\ & 0.05 \end{aligned}$ | $\begin{aligned} & 0.75 \\ & 0.75 \\ & 0.75 \\ & 0.75 \\ & 0.75 \end{aligned}$ | $\begin{aligned} & 20 \mathrm{k} \\ & 20 \mathrm{k} \\ & 20 \mathrm{k} \\ & 20 \mathrm{k} \\ & 20 \mathrm{k} \end{aligned}$ | $\begin{aligned} & 100 \\ & 100 \\ & 100 \\ & 100 \\ & 100 \end{aligned}$ | $\begin{aligned} & 399.00 \\ & 499.00 \\ & 339.00 \\ & 449.80 \\ & 599.00 \end{aligned}$ | $\dagger$ Usable as stereo 2-way or mono 3-way. †Usable as stereo 3 -way or mono 4-way. |
| SESCOM | P0-51 | A | M | 3 | $\begin{aligned} & 20-200,200-2 k, \\ & 2 k-20 k \end{aligned}$ | Yes | P |  |  | 80 | 0.01 | 0.75 | 10k | 100 | 190.60 | Requires P0-1 power supply. |
| SNELL acoustics | EC 200 | A | 0 | 2 | 80 | No | F | S/M | 5 | 92 | 0.01 |  | 15k | 100 | 299.00 | 12-dB/octave high-pass, 24dB/octave low-pass; summed output for use with a single subwoofer. |
| SNELL MULTIMEDIA | EC 300 | A | 0 | 2 | 80 | No | F | SM | 6 | 92 | 0.01 |  | 15k | 100 | 299.00 | 12-dB/octave high-pass, 24dB/octave low-pass; summed output for use with a single subwoofer, high-pass output for center channel. |
| SOUND ENGINEERING | PFM-9 | A | X | 3 | 40-160, 400-3.2k | $\mathrm{N}_{0}$ | SN | S/M | L $\dagger$ | 118 | 0.03 | Var. | 20k | 50 | 2050.00 | $\dagger$ Subwooter. |
| SUMO | Deiliah II | A | S×/0 | 2 | 50, 63, 80, 100, 125 | Yes | S | S/M/B | L | 95 | 0.007 | 2 | 47k | 75 | 599.00 | Bypassable Class-A high-pass section. |
| SYMETRIX | 524 E | A | M/S/0 | $\dagger$ | 70-10k | Yes | P |  | 4 | 109 | 0.03 | 1.23 | 10k | 200 | 1095.00 | $\dagger$ Usable as stereo 2-way, mono 3-way, or mono 4-way Balanced inputs and outputs; phase controls; outputs have independent limiters. |
| TC SOUNDS | ICX | A | S |  | 30-10k | Yes | P | S | L | 95 | 0.01 | 1 | 10k | 100 | 995.00 | Balanced version, \$1595.00. |
| UNITY AUDID | Unity PARM | C | S | 2 | 40-300 | Yes | P | S | L | 115 | 0.001 | 1 | 600 | 600 | 2750.00 | Fully balanced differential circuits. |

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## Comparing The Analog Interconnect Cables:

"A comparison of the Tice IC-1 Interconnect with MIT, Discovery and Wire World Eclipse, produced nearly the same disparity in performance as the Digital Cable comparison."

## Comparing The Power Conditioners:

"The players consisted of the familiar Counterpoint PACs, the venerable PowerWedge and two new contenders: the Promethean Audio Power Flo and the Tice Audio MBF-3."
MBF-3 "Images within the soundstage are extremely well focused with an unbelievable sense of roundness and space around them.
As an extra bonus you get deeper more accurate bass and a gloriously warm midrange." "The bass had genuine slam." "The midrange was lush, but not licentious with a wonderful sense of ease. But best of all, the depth and width of the soundstage had increased significantly. There was a uncanny sense of layering and space together with extraordinary localization of images. It sounded much more like real music in real space. Time for a reality check. Back in goes the Power Flo... Woosh! The sound of the soundstage collapsing."

Stuart Mc Creary - Positive Feed Back Magazine
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David Robinson - Editor - Positive Feed Back Magazine
Tice Audio Products 1530 Cypress Dr. Suite C


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| AMRITA AUDIO (Continued) | The AMRIT. Thunderbird <br> The AMRITReterence | Stareo Bandpass Subwoot Int. Bat. | $\begin{aligned} & \text { (2) } 10 \\ & 13 \end{aligned}$ | (2) $6^{1 / 2}$ | Cones | 1 | Dome | No | $24-100$ $34-20$ | 92 | 50 30 | 180,4k | $7 / 7$ $4 / 3.4$ | $17 \times 19 \times 36$ $49 \times 17 \times 15$ | Opt. Opt. | Dpt. | 96 110 | $\begin{array}{r\|} \hline \text { From } \\ \text { 895.00 } \\ \text { Each } \\ 379.00 \\ \text { Pair } \end{array}$ |
|  | Standard <br> The AMRIT- <br> Summit Towers | Ported | (2)10 |  | Cone | 1 | Oome | No | 28-20 | 91 | 30 | 180,4k | 4/3 | $42 \times 16 \times 14$ | Opt. | Dpt. | 85 | $\begin{gathered} 2095.00 \\ \text { Pair } \end{gathered}$ |
|  | The AMRIT- <br> Allagra Towers | Ported |  | 3 | Dome | 3/4 | Dome | No | 32-20 | 90 | 30 | 600,4k | 4/3 | $37 \times 17 \times 13$ | Opt. | Dpt. | 73 | 1195.00 Pair |
|  | Aliegra Towers <br> The AMRIT- <br> HeartLand | Bass Ref. | (4)8 |  |  | 1 | Dome | No | 31-20 | 96 | 30 | 3.4k | 4/2 | $36 \times 13 \times 17$ | Opt. | Opt. | 72 | 1295.00 Pair |
|  | The AMRIT- | Bass Ret. | (2) 8 |  |  | 1 | Oome | No | 40-20 | 92 | 30 | 2.5k | 4/3 | $17 \times 11 \times 12$ | Opt. | Opt. | 37 | 995.00 |
|  | The AMRIT- | Bass Ref. | 8 |  |  | 1 | Dame | No | 36-20 | 90 | 30 | 2k | 6/5 | $35 \times 11 \times 12$ | Opt. | Opt. | 50 | Pair 845.00 |
|  | Elan Towers The AMRIT. | Bass Ref. |  |  |  | 1 | Dome | No | 46-20 | 90 | 30 | 3.5k | 6/5 | $35 \times 10 \times 8$ | Opt. | Opt. | 31 | $\begin{aligned} & \text { Pair } \\ & 645.00 \end{aligned}$ |
|  | Troppo Towers The AMRIT- | Ac. Sus. |  |  |  | 1 | Oome | No | 58-20 | 90 | 30 | 3.5k | 6/5 | $15 \times 10 \times 8$ | Opt. | Opt. | 16 | $\begin{array}{r} \text { Pair } \\ 495.00 \end{array}$ |
|  | Arie <br> The AMRIT- <br> Prospero | Powered Conjugate | $\text { (2) } 15$ |  |  |  |  | W |  |  | $\begin{aligned} & 175 \\ & \text { Inc. } \end{aligned}$ |  | 4/3 | 30 Oia . | Opt. | 0 pt . | 110 | $\begin{array}{r} \text { Pair } \\ \text { 1995.00 } \\ \text { Each } \end{array}$ |
|  | The AMRITKronos Towers |  | (2)8 | $31 / 2$ | Dome | 1 | Dame |  | $\begin{aligned} & 24-20 \\ & +3,-5 \end{aligned}$ | 90 | 7.5 | 650,4.5k | 7/4 | $12 \times 16 \times 40$ | Opt. | Opt. | 72 | $\begin{gathered} 1645.00 \\ \text { Pair } \end{gathered}$ |
| ANDANTE AUOIO |  | Vented Sat. |  |  |  | 3/4 | Dame |  |  |  |  |  |  | $8 \times 5 \times 5$ |  | Opt. | 3 | $\begin{aligned} & 129.00 \\ & \text { Pair } \end{aligned}$ |
|  | CF65 | Subwoot. | (2) $6^{1 / 2}$ |  |  |  |  |  | 30-120 | 90 | 50 | 120 | 8/6 | $25 \times 14 \times 11$ | Black | Black | 34 | 399.00 |
|  | vM150 | AV, | 4 |  |  | 3/4 | Dame |  | 55-21 | 90 | 20 | 3k | 8 | $8 \times 5 \times 5$ | Black | Black | 3 | 169.00 |
|  |  | Vented <br> In-Wall | $61 / 2$ |  |  |  | Oame | T | 50-21 | 90 | 20 |  | $8 /$ | $12 \times 9 \times 3$ |  |  | 4 | Pair 199.00 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | Pair |
| AMTIPHON | Aphation | Vented | $\begin{aligned} & \hline(2) \\ & 81 / 4 x \\ & 111 / 4 \end{aligned}$ | 2 | Dame | 3/4 | Oome |  |  | 87 | 100 |  | 4 | $72 \times 17 \times 15$ | Opt. | $\begin{aligned} & \text { Black } \\ & \text { Knit } \end{aligned}$ | 150 | $\begin{aligned} & 14,500 \\ & \text { Pair } \end{aligned}$ |



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There is no single perfect loudspeaker for every use - there are several. We know, because we make them From NHT's highly acclaimed SuperZero two-way speaker, to the revolutionary new Model 3.3, the ultimate expression of our Focused Image Geometry technology.

These two products represent merely the extremes of NHT's innovative new product family. We now have the ideal speakers for every space, and every budget. Each is based on our philosophy of making something great, or not making it at all. And isn't that something everybody wants to hear?





Hologram "snaps" of tweeter showing no modal resonance, moderate amounts, and excessive amounts, each reflecting the use of different materials. The far left is Polk's Trilaminate tweeter.

## DYNAMIC BRLANCE. SEETT PICTURES BEFORE <br> YOU Hear IT IN PERSON.

Before we could design and build speakers as sophisticated as the new LS Series, we had to design and build a whole new way to "look" at speakers.

At Johns Hopkins' Center for Non-Destructive Evaluation, a joint Polk/Hopkins team created a new Full-Field, Quasi-heterodyne, Laser Interferometry lest. Much more useful than pronounceable, it allowed us for the first fime to take a full-field hologram "snap shot" of microscopic forms of distortion generated by speaker materials themselves.

In the LS Series, the manifestation of Dynamic Balance"w is brilliantly executed with the addition of aramid fibers to the cone, insuring that music, not unwanted resonance, literally jumps off the cone.

Through a new patented process known as vapor deposition, we formed a trilaminate tweeter dome of aluminum, stainless steel, and polyamide. This turned out to be quite the musical combo, providing all the listening ease of soff domes with the superb liveliness of metal domes.

Syyling in the LS Series is not only breathtaking, it is highly functional. The slim, tapered cabinet design belies its technological contribution. The angled sides break up standing waves inside the cabinet, so detrimental to midrange performance. At the same time, this design feature also enhances the stereo presentation dramatically.

All LS Series speakers are available in a striking, gloss rosewood laminate. The LS50 and LO are also offered in oak laminate with the LS9O available in natural Oak.

And each one of them is Dynamically Balanced.
Our pictures prove it. And so will your ears at your Polk Dealer.

## THE NEW LS SERIES FROM THE SPEAKER SPECIAUSTS OF POThsondo



## Wéve turned a visual medium,



## into an audio extra large.

You've never heard anything like this.

Hith Sensurround"' Home Theater .rou won't just

be surrounded by sound, vou'll be enveloped, involved, and like never
drnamic range (both exceed 90 decibels). As a re-
sult, nwi'll feel violent explosions as well as violin
solos. In that note. Sensurround
speakers are well-ssited so music.

before, entertained. Cerwin-

Vega originally designed

Sensurround (with MCA ${ }^{*}$ ) to
bring deep bass into movie


So you don't need separate
speakers for audio and video.

WT at you will need is an $A V$
receiver with Dolbr Pro Logic
Sensurround Home Theater Speaker Systems
ant a fairly large screen TV:
\{ Winner Of The 1992 Design And Engine - ring Award\}
houses. Now we can bring it
 into your house. Our 5-piece apeaker system for direct-riew televisions
(pictured here) and 7-piece s.rstem for projection
TVs give you extremely high sensitivity and uide

Not to mention, a tub cf Orville
Redenbacher's" and a tickel booth.


Cerwin-Vega Sensurround. It makes big screen tele-



## LOUDSPEAKERS




## UNFORGETATABLE

Your ears have an amazing memory, which is why you seek a loudspeaker that's as unforgettable as liye music.
Had nature intended sounds to travel only forward; acoustics would be a simple science.
Unlike conventional speakers, Mirage's M-si Series
Bipolar loudspeakers set the music free over a full 360 degrees.

It's only natural.
Because what defints the sound of music is as much the physical space surrounding them as the instruments themselvesain reproducing music, a loudspeaker must place you, the audience, in that space.
Mirage's Bipolar speakers do just that.
But before you audition the M-si Series at your Mirage dealer, take in a live concert or two.
Then you can experience for yourself just how unforgettably life-like the M-si's really are.


## ㅍx' In-Wall Loudspeakers

## Nisic Bings ARoom To Life.

## Relax,

You don't have to sacrifice needed floor space with conventional loudspeaker cabinets to get quality audio performance reproduced in your home.

Introducing rich full-range audio performance from MTX InWall Loudspeakers. 'MTX inf Valls actually flush mount into the walls of your home making spacesaving, architechtural sound a practical reality for serious music lovers.

To ensure durability, MTX InWalls are ruggedly engineered and manufactured to withstard and resist moisture, dust and temperature changes. MTX InWall *speakers are extremely versatile. You can leave MTX InWalls white, or easily paint or wallpaper them to match your home's decor. They are available in a range of sizes and configurations to fit any wall or room.

You can use MTX InWalls in your main listening room, or to supply foreground, background, front or rear surroundsound in your home theater. MTX InWalls feature driver-specific crossover components that allow polypropylene woofers to produce deep, powerful bass while ferrofluid cooled soft dome tweeters provide smooth, clean high frequency clarity and detail.

Check out MTX's complete line of InFloor subwoofers and electronics to perfectly complement your InWall speakers.

For more information, specs, or the name of the authorized MTX dealer nearest you, call us at 815-232-2000 or write to us at MTX 555 West Lamm Road, Freeport,
IL 61032. In Canada call SCL Products at 604-273-1095(B.C.) or 416-890-0298(Ont.).


## Is your home the right place for your speakers?




BY PLACING THE TWEETER AT THE CENTER OF THE WOOFER, KEF HASCREATED THE UN $\cdot \mathrm{Q}$, A VIRTUAL POINT SOURCE OF SOUND.

No matter how good loudspeakers may sound in the lab, in a review column, or in a dealer's showroom - what really matters is how they sound when you get them home.

This is why KEF developed the Uni-Q Driver... to help reduce the adverse effects of your room's boundaries. Uni-Q works as a point-source of sound, producing a precisely controlled, highly uniform dispersion pattern. This reduces the room reflections that can muddy the sound and destroy the spatial accuracy of the stereo image. The result? Freedom to place the speakers where they fit best, knowing they will also sound their best. Uni-Q's realistic sound, accurate imaging and placement flexibility becorne especially valuable in home theater and surround sound applications, which require precise localization to effect cinematic realism.

For KEF, the world's finest loud-speakers are those that sound the best in your home.





THE KEF COUPLED CAVITY BASS SYSTEM COMBINES DEEP BASS WITH HIGH EFFICIENCY

The laws of physics dictate that deep bass can only be produced by larger loudspeakers or by inefficient, smaller designs. While the laws of physics can't be broken, they can be bent a little. KEF's loudspeaker science has developed the Coupled Cavity Bass system, which combines the deep bass extension of sealed enclosures with the high efficiency of ported designs. The result? Speakers capable of full concert volume with deep, tight bass and crisp transients. without requiring excess power or space. Realistic deep bass and audio/video compatible magnetic shielding make KEF Reference loudspeakers ideal for home theater applications.

The Coupled Cavity Bass System, joins such other KEF scientilic advances as the Uni-O Driver, which helps eliminate the adverse effects of room acoustics; and Conjugate Load Matching, which makes it less strenuous for your amplifier to drive your speakers.

Together, these advances have earned KEF its international reputation for real-world performance. For KEF, the world's finest speakers are those that sound best in your home


| MANUFACTURER |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CERWIN-VEGA (Continued) | $\begin{aligned} & \text { W-8x2 } \\ & \text { W-SUB8 } \end{aligned}$ | Home Th. In-Wall Home Th. In-Wall Subwoot. | 8 |  |  |  | Dome |  | $\begin{aligned} & 40-20 \\ & \pm 2 \\ & \mathbf{4 0 . 1 2 5} \\ & \pm 3 \end{aligned}$ | 92 92 |  | $\begin{aligned} & 3.5 k \\ & 125 \end{aligned}$ | $\begin{aligned} & 8 / 6.8 \\ & 8 / 6.8 \end{aligned}$ | $\begin{aligned} & 15 \times 11 \times 4 \\ & 15 \times 11 \times 4 \end{aligned}$ | Matte White Matte White | White Metal White Metal |  | $\begin{array}{r} 530.00 \\ \text { Pair } \\ 450.00 \\ \text { Pair } \end{array}$ |
| CHAPMAN SOUND | T-7 | Compr. Line | 10 | 7 | Cone | 1 | Dome | No | $\begin{aligned} & 28-20 \\ & \pm 3 \end{aligned}$ | 90 | 50 | 125.3k | 4/3 | $44 \times 13 \times 10$ | Diled Oak | Black Knit | 90 | $\begin{array}{r} 1999.00 \\ \text { Pair } \end{array}$ |
| CHARIO | Academy 1 | Bass Ref. | 5 |  |  | 11/4 | Dome |  | $\begin{aligned} & 50-20 \\ & \pm 2 \end{aligned}$ | 81.5 | 50 | 1.85k | $8 / 6$ | $13 \times 8 \times 12$ | Solid Wal. | Black Knit | 20 | $\begin{array}{r} 2500.00 \\ \text { Pair } \end{array}$ |
| CLARK ALIDIE | Contrabass | Subwoot. | (2)12 |  |  |  |  | SW | 18-60 |  | 50 | 60 | 4/2.5 | $21 \times 19 \times 28$ | Opt. |  | 110 | $\begin{array}{r} 2000.00 \\ \text { Each } \\ \text { w Xover } \end{array}$ |
| CLASSIC AUDIO REPRODUCTIONS | Harstield | Folded Horn | 15 | 2 | Horn | (2) $11 / 2$ | Slot Horns | M,T | $\begin{aligned} & 31.5-16 \\ & \pm 5 \end{aligned}$ | 110 | 10 | 800,7k | $8 / 6$ | $47 \times 47 \times 24$ | Opt. | Opt. | 300 | $\begin{array}{r} 8950.00 \\ \text { Pair } \end{array}$ |
| CLEARFIELD | Meiropolitan | Vented Trans. |  | (2) 6 | Cones | 1 | Dome | W, T | $\begin{aligned} & 25-25 \\ & \pm 3 \end{aligned}$ | 91 | 50 | 125,2k | 4/4 | $10 \times 24 \times 62$ | Opt., | Black Knit | 156 | $\begin{array}{r} 6000.00 \\ \text { Pair } \end{array}$ |
|  | Continental | Line Vented Trans. Line | (2) $61 / 2$ |  |  | 1 | Oome | W | $\begin{aligned} & 31-25 \\ & \pm 3 \end{aligned}$ | 88 | 50 | 2.6k | 4/4 | $8 \times 17 \times 50$ | Opt. . Wood | Black Knit | 89 | $\begin{array}{r} 3500.00 \\ \text { Pair } \end{array}$ |
|  | Diplomat | Sealed | 61/2 |  |  | 1 | Dome |  | $60-25$ $\pm 3$ | 87 | 30 |  | 8/6 | $12 \times 12 \times 17$ | Opt. | Black Knit | 46 | $\begin{array}{r} 1200.00 \\ \text { Pair } \end{array}$ |
|  | Embassy | Slotted Port | 8 |  |  |  |  | W | $\pm{ }^{ \pm 0-60}$ | 87 | 30 | 60 | 8\% | $12 \times 15 \times 25$ | Black |  | 60 | 800.00 Palr |
|  | Oppheum | Subwool. AN Sat. | $61 / 2$ |  |  | 1 | Dome |  | $\begin{aligned} & 60-25 \\ & \pm 3 \end{aligned}$ | 87 | 20 | 2k | $8 / 6$ | $9 \times 10 \times 14$ | Black | Black | 25 | 895.00 Pair |
|  | Bijou | AN | $(2) 51 / 4$ |  |  | 1 | Dome |  | $70.25$ | 87 | 20 | 2k | 4/4 | $7 \times 8 \times 18$ | Black | Black | 35 | $\begin{array}{r} 495.00 \\ \text { Each } \end{array}$ |
|  | Mystic | Ctr Ch. Dipole Surround | $(2) 51 / 4$ |  |  |  | Domes |  | $\begin{aligned} & \pm 3 \\ & 80-25 \\ & \pm 3 \end{aligned}$ | 85 | 20 | 2k | 4/4 | $7 \times 8 \times 10$ | Black | Black | 25 | $\begin{array}{r} \text { Each } \\ 795.00 \\ \text { Pair } \end{array}$ |
| CLEMENTS |  |  |  |  |  |  |  |  |  |  |  |  |  | $11 \times 19 \times 46$ | Opt. |  |  | $\begin{array}{r} 5595.00 \\ \text { Pair } \end{array}$ |
|  | $\begin{aligned} & \text { RT-7 } \\ & \text { Reference } 1 \end{aligned}$ | Line Compr. | $51 / 4$ |  |  | $5$ | Ribbon | $M, T$ | $\begin{aligned} & \pm 3 \\ & 42-40 \end{aligned}$ | 87 |  | 2.4k | $6 /$ | $8 \times 12 \times 17$ | Opt. |  |  | 2795.00 |
|  |  | Line. |  |  |  |  |  |  | $\pm 3$ |  |  |  |  |  |  |  |  | Pair <br> 1200.00 |
|  | 800si | Compr. |  |  |  |  |  |  |  |  |  |  |  |  | Oak | Knit |  | Pair |
|  | 600si | Compr. |  |  |  |  |  |  |  |  |  |  |  |  | Black | Black |  | 950.00 |
|  | 300si | Line |  |  |  |  |  |  |  |  |  |  |  |  | Black | Black |  | 650.00 |
|  |  | Line |  |  |  |  |  |  |  |  |  |  |  |  | 0ak | Knit |  | ${ }^{\text {Pair }}$ |
|  | Vsi | Ctr. Ch.; 4th Order | (2)41/2 |  |  | $3 / 4$ | Dome |  | $55-20$ $\pm 3$ | 100 |  | 3.5k | 8/ | $17 \times 7 \times 5$ | Black Oak | Black Knit |  | 200.00 Each |
|  |  | Vented |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
|  | 308di | 4th Order Vented | (2)8 |  |  | 1 | Dome |  | 35-20 $\pm 3$ $\pm 3$ | 92 |  | 2.8k | $8 /$ | $11 \times 11 \times 40$ | Black | Black Knit |  | 800.00 <br> Pair |
|  | 208di | 4th Order | 8 |  |  | 1 | Dome |  | -38-20 | 91 |  | 2.8k | 8 | $11 \times 11 \times 32$ | Black | Black Knit |  | 600.00 Pair |
|  | 108di | Vented C | 8 |  |  | $3 / 4$ | Dome |  | $\stackrel{ \pm}{40-20}$ | 90 |  | 2.5k | $8 /$ | $11 \times 11 \times 24$ | Black | Black |  | 400.00 |
|  | 106di | Vented |  |  |  |  | Dome |  | $\pm 3$ $50-20$ | $89$ |  | 3k | B/ | $8 \times 9 \times 14$ | Oak Black | Knit Black |  | Pair 300.00 |
|  | 10601 |  | 6 |  |  |  | Dome |  | $\pm 3$ | $89$ |  |  |  | $8 \times 9 \times 14$ | Oak | Knit |  | Pair |
|  | 104di | 4th Order Vented | 41/2 |  |  |  | Dome |  | $\begin{aligned} & 70-20 \\ & \pm 3 \end{aligned}$ | 89 |  | 3.5k | $8 /$ | $6 \times 5 \times 9$ | Black Oak | Black Knit |  | 200.00 Pair |
| CLIF DESIGNS | KR-708 | Sat. ${ }^{\text {s }}$ | 12 | 4 | Cone | 3/4 | Dome |  |  | ${ }^{88}$ | 35 | 140,5k | 4/4 | Three Pieces | Sand | Opt. |  | 749.00 Sys. |
|  | KR-608 | Subwoot. <br>  | 8 | 4 | Cone | $3 / 4$ | Dome |  | $\pm 36-21$ | 88 | 35 | 140,5k | 4/4 | Three Pieces | Sand | Opt. |  | 699.00 |
|  |  | Subwoof. |  | 4 | Cone |  | dos |  | $\pm 3$ |  |  |  |  |  | Text. |  |  | Sys. |
|  | KR-508 | Sat. 8 <br> Subwoot | 8 | 4 | Cone | $3 / 4$ | Dome |  | 46-21 $\pm 3$ | 88 | 35 | 140,5k | 4/4 | Three Pieces | Sand Text | Opt. |  | 599.00 Sys. |
|  | K-101 | Ctr Ch . | $41 / 2$ |  |  | 3/4 | Dome |  | 55-20 | 91 | 25 | 12k | 4/4 | $21 \times 6 \times 8$ | Sand | Opt. |  | 249.00 |
|  | K-100 | Ctr. Ch. | $41 / 2$ |  |  | 1/2 | Dome |  | 士3 $55-20$ | 91 | 20 | 12k | 4/4 | $21 \times 6 \times 8$ | Text. Sand | Opt. |  | Each |
|  |  | Cr. Ch . | 4/2 |  |  | $1 / 2$ |  |  | $\pm 3$ |  |  |  |  | $21 \times 6 \times 8$ | Iext. |  |  | Each |
|  | K-400 |  | 8 |  | Cone | 1 | Dome |  | $\stackrel{-45}{4-22}$ | $90$ | $35$ | $3.5 k$ | $4 / 4$ | $10 \times 17 \times 12$ | Sand <br> Text | Opt. |  | ${ }^{249.00}$ Each |
|  | K-350 |  | 5 |  | Cone | 3/4 | Dome |  | 65-21 | 91 | 25 | 5k | 4/4 | $8 \times 11 \times 8$ | Sand | Opt. |  | 199.00 |
|  |  |  |  |  | Cone | $3 / 4$ | Dome |  | $\pm 3$ $100-21$ | 90 | 25 | 5k | 4/4 | $5 \times 7 \times 4$ | rext. Sand | Opt. |  | Each |
|  | K-300 | Sat. |  | 4 | Cone | $3 / 4$ | Dome |  | $\stackrel{100-21}{ }$ | 90 | 25 | 5k | 4/4 |  | Text. | Op. |  | Pair |
|  | K-200 | Sat. |  | 4 | Cone | 3/4 | Dome |  | $110-20$ $\pm 3$ | 90 | 25 | 5k | 4/4 | $5 \times 7 \times 4$ | Sand Text. | Opt. |  | 199.00 Palr |
| COLLETTI <br> SPEAKER | Minuscolo | Bass Ret. | 4 |  |  | $31 / 2$ | Horn |  | 65-20 | 92 | 15 | 2.96k | $8 /$ | $12 \times 8 \times 6$ | 0pt. | Opt. | 12 | $\begin{array}{r} \text { From } \\ 249.00 \end{array}$ |
| SYSTEMS | Bambino | Bass Ret. | $61 / 2$ |  |  | $31 / 2$ | Horn |  | 50-20 | 92 | 15 | 2.96k | 8/ | $16 \times 10 \times 8$ | Opt. | Opt. | 20 | (ealr |
|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 399.00 Pair |
|  | Piccolo | Bass Ref. | 61/2 |  |  | $31 / 2$ | Horn |  | 38-20 | 92 | 15 | 2.96k | $8 /$ | $19 \times 12 \times 9$ | Opt. | Opt. | 30 | $\begin{array}{r} \text { From } \\ 499.00 \end{array}$ |
|  | Grande | Tuned Port | 8 | 51/4 | Cone | $31 / 2$ | Horn |  | 30-20 | 92 | 15 | $\begin{aligned} & 155, \\ & 2.96 \mathrm{k} \end{aligned}$ | $8 /$ | $36 \times 14 \times 14$ | Opt. | Opt. | 60 | $\begin{array}{r} \text { Pair } \\ \text { From } \\ 899.00 \\ \text { Pair } \end{array}$ |
|  | Quatiro | Sat. \& Subwoif. | (2)12 | (2) $5^{1 / 4}$ | Cones | (2) $31 / 2$ | Horns |  | 25-20 | 92 | 15 | $\begin{aligned} & 155 \\ & 2.96 \mathrm{k} \end{aligned}$ | 8/ | Four Pieces | 0 pt . | Opt. | $\begin{aligned} & 130 \\ & \text { Sys. } \end{aligned}$ | $\begin{array}{r} \text { From } \\ 1199.00 \end{array}$ |
| (Continued) | Ulitimo | Sat. \& Subwoot. | (2) 15 | (2) $51 / 4$ | Cones | (2) $31 / 2$ | Horns |  | 20-20 | 92 | 15 | $\begin{aligned} & 155, \\ & 2.96 \mathrm{k} \end{aligned}$ | $8 /$ | Four Pieces | Opt. | Opt. | $160$ Sys. | Sys. From 1339.00 Sys. |

## Why won't conventional hi-fi speakers work for Home Theater?

You need three front speakers - left, right and center - to achieve realistic home

UNI-QDRNER TECHNOLOGY LETS EVERYONE BEIN THE "SWEET SPOT." theater. A stereo pair would place the dialog in the center (where it belongs) from only one listening position. You can't use conventional hi-fi speakers for the center channel, even shielded models, because their dispersion patterns prohibit raising them too high or laying them on their sides.

KEF's proprietary Uni-Q ${ }^{\text {d }}$ driver, which places its tweeter at the center of the woofer, allowed KEF's engineers to create the ideal center channel speakers, the Models 100 and 90. Their uniform dispersion patterns let them be placed beautifully above or below the screen, creating the impression that the sound is coming directly from the screen. Moreover, the Models 100 and 90 are both Reference Series, which not only ensures their quality and consistency; it permits their use as satellites and their seamless integration with other KEF Reference and Q-Series loudspeakers.

The Uni-Q driver. One of a series of KEF scientific achievements dedicated to one goal: the most realistic performance in your home.



## Heniry Kloss Speakers. Factory-



Henry Kloss, creator of the dominant speakers of the '50s (Acoustic Research), '60s (KLH) and '70s (Advent), brings you Cambridge SoundWorks, a new kind of audio company with factory-direct savings.

Our Center Channel speaker (\$149) and our Center Channel Plus speaker (\$219) are perfect for Dolby ${ }^{\text {® }}$ Surround Pro Logic ${ }^{\circledR}$ Systems. They offer very high performance, and are magnetically shielded. Center

## Channel Plus can

fit under
your TV.



The Powered Subwoofer (\$599) and Slave Subwoofer (\$299) by Henry Kloss provide room-shaking bass (over 100 dB at 30 Hz !). Great for pipe organs and effects in movie soundtracks. Built-in 200w amplifier. $151^{\prime \prime} \times 261^{\prime \prime} \times 10^{1 / 4}{ }^{\prime \prime}$ (each model)

NEW! The Cambridge SoundWrks Model Six continues a 40 year tradition of high performance, high value two-way acoustic suspension loudspeakers by Henry Kloss. The Model Six with its 8" woofer, delivers very natural, accurate, wide-range sound-for only $\$ 119$ each, factory-direct. Your choice of three beautiful cabinet finishes.


Ambiance ${ }^{\text {Tu }}$ In-Wall speakers (\$329 pr.) offer an unbeatable combination of performance, value and ease of installation.

## Direct Prices. 1-800-FORHIFI.



Everything you need to change your great stereo into a great home theater. $\$ 867$.

The dual-subwoofer Ensemble ${ }^{\circledR}$ speaker system gives you ultimate room-placement flexibility for best real world performance. Audio magazine says it may be "...the best value in the world." With blacklaminate subwoofers (\$599), or black vinylclad subwoofers (\$499).

## Free Color Catalog!

If you have any questions...if you want the free catalog including components from Cambridge SoundWorks, Pioneer, Philips, Sony and more... or if you would like to order, call us toll-free, 8AM-Midnight ET. All products are backed by a 30-day guarantee.


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To Make Loudspeakers.

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## AMIERICASS MOST POWIERFUL SPEAKER COMES FROM HOPE, ARKANSAS. 

## INTRODUCING KLIPSCH POWERED SUBWOOFERS.

In the past few manths, millions of our fellow Americans have been irtroduced to the little town of Hope, Arkansas. But as anyone who knows anything about audio will tell you, great speakers have been coming out of Hope for nearly fifty years. For 1993 Klipsch inaugurates foun new powered subwoofers that set the industry standard with state of the art technology.
Our new powered subwoofers are engineered with the same high efficienzy and low distortion you've come to expect from our loudspeakers. In addition, they give you the extended bass, nigh output capability and wide dynamic range yol need to transcend passive listenirg into a trul'/ powerful sound experience.
Visit your authorized Klipsch dealer for a demonstration of the powered subwoofers that will transform your home audio system into true Klipsch home theater.



## Some Assembly Required

AT \$1175 per pair, the new Magneplanar® MG-10 was designed for use with subwoofers. The $10-1 / 2^{\prime \prime}$ wide MG-10 offers sweet sound with the combination of quasi-ribbons and planar technology from 80 Hz to 22 kHz at a modest cost-- an ideal product for the music lover who also enjoys an occasional movie.

Contrary to popular belief, subwoofers should be placed with care to realize their full potential. To assist you in the setup, we pay part of the
cost for the dealer to visit your home after you purchase the MG-10's -- it's that important to us.

When the final assembly is done, you will have the open, airy sound of Magneplanar quasiribbon/planar technology smoothly blended to a subwoofer--ready for a Saturday night movie or music at any time.

## III MAGNEPAN

1645 Ninth Street, While Bear Lake, MN 55110



# SURROUND YOURSELF 

with thunderous realism and crystalline clarity, rendered with remarkable imaging and true-to-screen sound placement.

Choose to surround yourself gradually, or all at once with the identically matched Venturi V52 Plus dedicated center-channel
speaker ard V52 front-channel/ rear-channel speakers. Ard for astounding yet impeccably clean bass effect the V12 powered subwoofer with separate component amplifier.

Each a superb individual audio performer, they combine to unleash the full potential of videocassette, CD and laserdisc recordings-on video systems

from modest to big-screen with Pro-Logic* surround decoder. To surround yourself as you see it, and for surprisingly less than most pre-packaged systems, ask your audio/video deater for a personalized demonstration.




## DHNAMIC BALANCE. IT TOOK Я JUGcUNG ЯC TO ACHIEV IT. NOW We'L NEVER DROP I.

The trick to Dynamic Balance ${ }^{\text {TM }}$ is to juggle a number of considerations and materials at the same time. If you do it right, you wind up with the astonishing sound of the new S Series.

Could we discover the perfect combination of materials to defeat unwanted resonance? In the S Series you'll find a cone made out of composite materials, whose blending insures clarity and musical purity.

Could we find a means of joining cone to basket that would assist in this damping function, too? In the $S$ Series you'll also see a highly sophisticated rubber surround that extends all the way to the edge of the basket to do exactly that.

Could we project the new tweeters' output to maximize dispersion, yet minimize diffraction? Every $S$ speaker features a unique baffle frame and tweeter faceplate to preserve musical depth and width as it takes the guess-work out of room placement.

The old axiom that the whole is greater than the sum of its parts was never more true than when we matched these new drivers and tweeters to create four remarkable sound systems. You'll hear a new level of clarity, transparency, and sound staging no equivalently priced speaker, and few expensive ones, can match.

The "package" we designed to house all this engineering prowess is especially befitting. The new S4, S6, S8 and S 10 cabinets are available in an elegant black ash or a traditional oak grain finish.

But no matter which of the S Series you choose, you'll know these Dynamically Badanced speakers feature enduring sound advances.

And that's a thought you shouldn't drop.

## THE NEW S SERIES FROM THE SPEAKER SPECIALISTS OF polkendo



# The Velodyme 15" Subwoofer: Controlling Brute Force Through Superb Engineering 

High-output, low distortion bass response can only be achieved by creating and controlling the power of brute force. Perfection of such an accomplishment demands superb engineering, critical manufacturing, and dedication to ideals: A feat, according to the audio press and listeners worldwide, that has been attained only by Velodyne Acoustics.

More than a decade of engineering excellence has generated Velodyne's "High Gain Servo" speakers to the forefront of the audio industry.

Velodyne's patented speakers are built in-house, to the most exacting specifications, using the finest materials available. With their superb design, engineering, and errorcorrection electronics, Velodyne's subwoofers remain the standard by which all others are judged.

LOW MASS (2.5 GRAMS) ACCELEROMETER The brains of Velodyne's patented "High Gain Servo System,"
 this amazing device is mounted directly on the voice coil, and measures the actual movement of the driver. The information is sent to a circuit, which makes corrections for any deviations from the pure input signal. This "error correction" circuit virtually controls the motion of the driver, and eliminates distortion.

HOLE PATTERN IN CONE Used to break up unwanted standing waves radiating from the throat of the cone.

HIGH DENSITY FOAM SURROUND PNENOLIC IMPREGNATED LINEN SPIDER AND SPACER To handle the long, $5 / 8$ inch peak-to-peak cone excursion, Velodyne uses the strongest most durable surround and spider available.

3 OUNCE RESIN REINFORCED CELLULOSE CONE Disatisfied with "off the shelf" cones that flex and distort when called upon to reproduce the lowest bass frequencies, Velodyne designed the strongest and stiffest cone ever produced.

## 3 INCH EDGEWOUND COPPER VOICE COIL

Carefully matched to the massive magnet structure, it assures constant linearity and instant response.

STEEL RASKET Specially designed to accept the deep cone and voice coil structure.

26 LB TOTAL MAGNET STRUCTURE
One of the largest magnet structures on any speaker, it provides the necessary torque recpired for maximum high-output, low distortion bass response. Includes:

STEEL TOP AND BOTTOM PLATES
10 LB. CERAMIC MAGNET
STEEL POLE PIECE
3 1.2 LB. CERAMIC SHIELDING MAGNET

## Velodyne <br> The Bottom Line In Bass

Velodyne Acoustics, Inc.
1070 Commercial St., Suite 101 San Jose, CA 95112
408/436-7270 $\quad 800 / 835-6396$


# Most Subwodfers Give You 25\% More Than You Bargaxined For! 

"Muddy" or "boomy" sounding bass is the by-product of TONAL HARMONIC DISTORTION (THD), the result of an increase in sound pressure level and a decrease in definition. THD is caused when a speaker is unable to accurately reproduce the required musical signal, creating extra harmonics that don't belong in the music. And surprisingly, 25\% THD is a typical accepted distortion specification for most of the subwoofers on the market today.


## "It is the cleanest low-frequency reproducer Ive ever heard." *

Velodyne solves the distortion problem with their patented "Motional Feedback - High Gain Servo" System. Unlike most "Servo" systems, which are based on voice coil impedance fluxuations and offer little improvement, Velodyne's system is based on a motion sensing device called an accelerometer.


This device is mounted directly to the speaker's voice coil, specificially to measure the acceleration of the speaker cone. The information is then sent to a comparator circuit, which
compares the differences between the pure signal from the source and the signal derived from the speaker's motion. These differences represent distortion.

The signal going to the woofer is then corrected (at 3500 times per second), to match the source signal. The result clear, powerful bass with virtually no distortion - is the sound of a Velodyne.


## "..the Velodyne produced no distortion I could bear or see on the scope...This placed it in a class by itself." *

Velodyne invented high-technology, low distortion subwoofers over ten years ago, receiving such critical acclaim from the audio press worldwide that it remains the standard by which others are judged.

Which is exactly what you bargained for.

## ".o.Ifyou want it all, the Velodyne is the subuoofer of choice." *

# Velodyne 

## The Bottom Line In Bass

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#   

Phase Technology loudspeakers have made the critics talk in glowing
terms of their perfomance and value. After 37 years, five patents (including the world renowned soft dome tweeter) and numerous awards, only one company can achieve so much quality at such reasomble prices.

## STEREOPHILE

Vol. 14, No. 1, Jan. 1991 - Model PC 80 "There is one area in which the PC-80s excel and even compete with the best: imaging. They had a remarkable ability to throw precise, pinpoint images within the soundstage."
-Robert Harley
HIGH PERFORMANCE REVIEW Val. 8, No. 3 -Model PC 8.5
"...it is among the most satisfactory speakers it has ever been my pleasure to review, and may represent the best value of the lot in inflation-adjusted dollars." -Bob Long

## STEREOPHILE

Vol. 14, No. 1, Jan. 1991 - Model PC 80 "Next to the extraordinarily constructed Hales System Two Signatures, the FC-80s were the mosi resonance-free cabinets on which I've performed this experiment.'


STEREOPHILE
Vol. 7, No. 4, Aug. 1984 - Model PC 60 "...Phase Tech offers stiff competition for products from better known perfectionist manufacturers."
-Dick Olsher

## STEREO REVIEW

Nov. 1990-Model PC 8.5
"In many ways, the Phase Technology PC 8.5 performs at a level that is rarely, if ever, found in conventional dynamic speaker systems, and certainly not at or near it's price."

$-J u l i a n H i r s c h$

STEREOPHILE
Vol. 7, No. 4, Aug. 1984 - Model PC 60 "...the PC-60s qualify as the best buy amongst this group of speakers.
-Dick Olsher

Robert Harley
Phase Technology offers higheperformance home and in-wall loudspeakers ranging from $\$ 200$ to $\$ 2400$.


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These are Martin Logan Speakers. Unlike any others. Gone are the components of a traditional speaker. It looks like we put nothing behind the grill. That's our electrostatic driver, incorporating an incredibly advanced Vapor Deposited Membrane that you can see right through. With less mass than the air it's moving. Capable of cleanly reproducing the exquisite texture of a Stradivarius violin, yet able to unleash the awesome power of a Fender ${ }^{\oplus}$ bass.

Martin Logan invented Curvilinear Electrostatic Technology. And we packed it all into a line of very remarkable loudspeaker designs. From the new Aerius starting at $\$ 1,995$ a pair to the $\$ 60,000$ Statement System.

All this is something you'll have a difficult time seeing. But you will hear it. Clearly.

## LOUDSPEAKERS

| mANUFACTU |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| JRM (Continued) | S18B-5 <br> S15A <br> S15A-5 <br> D15A-5 <br> VLS Satellite <br> Tower | Powered <br> Subwoot. <br> QB3 <br> Vented <br> Subwoot. <br> Powered <br> Subwoof. <br> Powered <br> Subwoot. <br> Sealed | 18 <br> 15 <br> 15 <br> (2) 15 <br> (6) $6^{1 / 2}$ | 3x26 | Horn | 11/8 | Horn | $\begin{aligned} & \mathrm{W}, \mathrm{M} \\ & \mathrm{~W}, \mathrm{M} \\ & \mathrm{~W}, \mathrm{M} \\ & \mathrm{~W}, \mathrm{M}, \end{aligned}$ | $\begin{aligned} & 20-200 \\ & \pm 1.5 \\ & 30-300 \\ & \pm 1.5 \\ & 20-250 \\ & \pm 1.5 \\ & 19-300 \\ & \pm 1.5 \\ & 20-20 \end{aligned}$ | 92 98 | 200 Inc. 200 200 Inc. 500 Inc. 200, $(2)$ 40 | Sel. <br> Sel. <br> Sel. <br> Sel. $125,900 \text {, }$ <br> 7k | 20k <br> 8/6 <br> 20k <br> 20k <br> Opt. | Opt. $8 \mathrm{Cu} . \mathrm{Ft}$. Opt., $6 \mathrm{Cu} . \mathrm{Ft}$. <br> Dpt., $4 \mathrm{Cu} . \mathrm{Ft}$. Opt., <br> $10 \mathrm{Cu} . \mathrm{Ft}$. $78 \times 16 \times 8$ | Opt. <br> Opt. <br> Opt. <br> Opt. <br> Opt. | Opt. <br> Opt. <br> Opt. <br> Opt. <br> Opt. | 130 | $\begin{array}{r} 2500.00 \\ \text { Each } \\ 875.00 \\ \text { Each } \\ 2200.00 \\ \text { Each } \\ 2200.00 \\ \text { Each } \\ \begin{array}{r} 880.00 \\ \text { Each } \end{array} \end{array}$ |
| JS AUDIO | 26 J | Ac. Sus. | 6 |  |  | 1 | Dome |  | 46-21 | 94 | 5 | 2.5k | $8 /$ | $12 \times 8 \times 8$ | Dak | Opt. | 171/2 | 450.00 |
|  | 26P | Vented | 6 |  |  | 1 | Dome |  | $\stackrel{-4}{40-22}$ | 92 | 15 | 2.5k | $8 /$ | $16 \times 10 \times 11$ | Oak | Opt. | 221/2 | 650.00 |
|  | 28 P | Vented | 8 |  |  | 1 | Dome |  | ${ }_{38-22}$ | 91 | 15 | 2.5k | $8 /$ | $19 \times 12 \times 10$ | Dak | Opt. | 25 | Pair 650.00 |
|  | 38 P | Vented | 8 | 3 | Cone | 1 | Dome |  | $\stackrel{ \pm}{ \pm 2}$ | 93 | 15 | 700,4 | $8 /$ | $19 \times 12 \times 10$ | Dak | Opt. | 321/2 | Pair ${ }_{\text {Pr }}^{\text {Pair }}$ (100.00 |
|  | 310P | Vented | 10 | 5 | Cone | 1 | Dome |  | $\stackrel{ \pm 3}{\text { 28-22 }}$ | 95 | 15 | 700,4k | 8 | $24 \times 14 \times 10$ | Oak | Opt. | 60 | Pair <br> 1600.00 |
|  | 412P | Vented | 12 | 5 | Cone | (2)1 | Dome, |  | $\stackrel{ \pm 3}{\text { 24-23 }}$ | 98 | 15 | 600, 4k, | $8 /$ | $27 \times 16 \times 12$ | Dak | Opt. | 75 | Pair 2100.00 |
|  | 415P | Vented | 15 | 5 | Cone | (3)1 | Horm Dome, Homs |  | $\stackrel{ \pm 3}{22-24}$ | 99 | 30 | 10k $600,4 \mathrm{k}$, | $8 /$ | $36 \times 19 \times 12$ | Dak | Opt. | 100 | Pair <br> 2900.00 |
|  | 612P | Vented | (2)12 | (2)5 | Cones | (4)1 | Horns Domes |  | $\pm \begin{aligned} & \pm 3 \\ & 24-22\end{aligned}$ | 99 | 30 | 12 k $600,4 \mathrm{k}$, 10 | 8/4 | $74 \times 16 \times 12$ | Dak | Opt. | 150 | Pair 4800.00 |
|  | Mesa II | Trans. | 12 | 2 | Dome | 11/2,1 | Domes |  | $\stackrel{ \pm 3}{\text { 25-25 }}$ | 90 | 40 | 10k ${ }^{\text {400,3k, }}$ | $8 /$ | $33 \times 16 \times 15$ | Oak | Opt. | 90 | Pair 4000.00 |
|  | DC I | Vented | (2)10 | (2) 4 | Cones | (4)1 | Domes |  | $\stackrel{ \pm 2}{22-20}$ | 96 | 50 | 10k $400,4 \mathrm{k}$, | 8/ | $61 \times 8 \times 16$ | Dak | Opt. | 100 | Pair 5400.00 |
|  | Subwoot | Vented | 15 |  |  |  |  |  | $\stackrel{ \pm 2}{20-120}$ | 91 | 40 | 10 k 120 | 8/4 | $18 \times 18 \times 19$ | Dak | Opt. | 78 | $\begin{array}{r} \text { Pair } \\ 950.00 \end{array}$ |
|  | 310 N | Subwoof. Vented | 10 | 4 | Cone | 1 | Dome |  | 32-22 | 91 | 20 | 700,3k | $8 /$ | $24 \times 14 \times 10$ | Dak | Opt. | 60 | Each 1700.00 |
|  |  |  |  |  | Cone |  |  |  | $\stackrel{ \pm 3}{ \pm 4-22}$ | 96 | 30 |  | $8 /$ | $48 \times 19 \times 12$ | Dak | Opt. | 125 | Pair 3800.00 |
|  |  |  |  |  |  |  |  |  | $\pm 3$ |  |  | $\begin{aligned} & 34,10 \mathrm{k}, \\ & 14 \mathrm{k} \\ & \hline \end{aligned}$ |  |  |  |  |  | Pair |

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# In case you need a second opinion.... or a third....or a fouth... 

## CS3.6

661 can say without reservation that the Thiel CS3.6 is a remarkable loudspeaker. 99 -Robert Harley, Stereophile, Vol. 16, No. 5, May '93

66 ...the Thiel represents a turning point in the market. You absolutely must listen to them before making a buying decision. 99

- Ugo Stella, SUONO, Italy Vol. 21, No. 10, October '92

66 ...the sound is so close to reality you immediately think this is it...a new reference. 99
-Menno van der Veen, Home Studio,
Netherlands, March '93
66 ...they'll give
you chills. 99
-Ken Kessler, Hi-Fi
News \& Record Review, U.K., November ' 92

## CS5

66 A completely
flawless design. 99

- Nagashima, Stereo

Sound, lapan No. 105, Winter '93
66...an extraordinary achievement in speaker-making. 99 -Larry Archibald, Stereophile, Vol. 13, No. 6, June '90


From left to right (suggested retail per pair): SCS-\$1,090; CS2 2-\$2,750; CS5-\$10,800; CS3.6-\$3,900; CS1.2-\$1,250.

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- Three-time AudioNideo International magazine's Grand Prix "Froduct of the Year" winner for the CS5 and the CS2. 2
- Stereo Sound, Jarian, magazine's 1992 COTY (Components of the Year) Award for the CS5


INNOVATIGNS C3

- Consumer Electronics Show Innovations Design and Engineering Award, winner for the CS5, CS3.6, CS2 J, and CS1.2







## ＂F FIIsel  THESE WMV BETTS Mosi Elouvilit Spankers．

Introducing the new line of surround－sound speakers by Optimus， the name for performance and value in audio．Place the powerful 100 －watt subwoofer out of sight and feel the high－impact bass of music and movies throughout your room．Listen as a seamless blend of midrange and highs flows from the swivel－directable satellites．

To convey the very best from Dolby Pro Logic ${ }^{\oplus}$ equipment，add a second pair of satellites for rear channels and the PRO CS－1 center－channel speaker for crystal－clear movie dialog．

Remarkably，the system shown here is priced hundreds less than competing brands and it＇s backed by a 5 －year limited warranty．Hear it today，along with the full line of Optimus speakers．
Optimus：Sound Value in Audio． Exclusively at Radio Shack．



## TRUE SUBWOOFER

With phenomenal true deep bass extending below 20 Hz with low distortion at a very affordable price.
The HRSW10s will extend bass of your stereo or video system for that "air shaking all around you" effect.
Here's what the experts are saying:
"Once you have heard what they can add to your system, you won't want to part with them. Aesthetically recommended!"

Gerald D. Burt, Sensible Sound, Issue No. 49, Fall 1993
"If you have a listening room of reasonable size, nothing can improve your stereo system as dramatically for $\$ 750$ as the Hsu Research HRSW10" Pete Aczel, The Audio Critic, Issue No. 19, Spring 1993
"I guarantee you this much; once you hear good clean bass, you'll be hooked for life. Highly recommended"

Dick Oshler, Siereophile, Vol. 16 No. 3, March 1993
"Truly awesome room shaking bass... $+0,-3 \mathrm{~dB} 14.3$ to 40 Hz " Don Keele, Audio 11/92
"Most effective subwoofer we have tested.... Best Buy" Julian Hirsch, Stereo Review 9/92
"Bass extension was truly remarkable"
Robert Deutsch, Stereophile Vol. 15 No. 4, April 1992
"Delivered clean low bass at high levels ... work just splendidly" David Moran, Speaker Builder 3/92
"Some of the most impressive subwoofer systems I've heard" Peter Mitchell, Stereophile Vol. 14 No. 3, March 1991
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| OWI <br> (Continued) | M-4F <br> M-5Cx <br> 2300 <br> 2301 <br> 3301 <br> 3302 | In-Wall <br> Coaxial, In-Wall In-Wall <br> In-Wall/ Celling In-Wall/ In-Walif Ceiling | $\begin{aligned} & 4 \\ & 51 / 4 \\ & 5 \\ & 51 / 2 \\ & 51 / 2 \\ & 51 / 2 \end{aligned}$ |  |  | $\begin{aligned} & 1 / 2 \\ & 2 \end{aligned}$ | Cone <br> Ribbon | n | $\begin{aligned} & 70-18 \\ & 50-20 \\ & 50-20 \\ & 65-20 \\ & 50-20 \\ & 65-20 \end{aligned}$ | 90 <br> 94 <br> 85 <br> 90 <br> 90 <br> 91 | $\begin{aligned} & 15 \\ & 15 \\ & 35 \\ & 30 \\ & 30 \\ & 30 \end{aligned}$ |  | $4 / 1$ <br> 4/1 <br> 4/1 <br> 6/2 <br> $4 / 1$ <br> $4 / 1$ | $4 \times 4$ <br> $6 \times 6$ <br> $9 \times 9$ <br> $9 \times 9$ <br> 9 Dla. <br> 9 Dia. | Plast. <br> Plast. <br> Plast. <br> Plast. <br> Plast. <br> Plast. | White <br> White <br> White <br> White <br> White <br> White | $1$ | 65.00 Each 89.00 Each 229.00 160.00 Each Each 191.00 Each |
| OXFORD | KT168 | $\begin{aligned} & \text { Vented } \\ & \text { Sat. } \end{aligned}$ | 4 |  |  | $3 / 4$ | Dome |  | 55-21 | 90 | 20 | 3k | 8 | $8 \times 5 \times 5$ | Opi. | Opt. | 3 | 129.00 Pair |
| PACIFIC SOUND \& SIGMAL | $\begin{aligned} & \text { PAC40 } \\ & \text { CF65 } \end{aligned}$ | Vented <br> Subwoof. | $\begin{aligned} & 4 \\ & (2) 61 / 2 \end{aligned}$ |  |  | 3/4 | Dome |  | $\begin{aligned} & 60-21 \\ & \pm 5 \\ & 30-120 \end{aligned}$ | 90 | $\begin{aligned} & 5 \\ & 50 \end{aligned}$ | $\begin{aligned} & 3 \mathrm{k} \\ & 120 \end{aligned}$ | $\begin{aligned} & 4 / 3 \\ & 8 / 6 \end{aligned}$ | $\begin{aligned} & 8 \times 5 \times 5 \\ & 25 \times 14 \times 11 \end{aligned}$ | Black <br> Black | $\begin{aligned} & \text { Black } \\ & \text { Black } \end{aligned}$ | $\begin{aligned} & \hline 3 \\ & 34 \end{aligned}$ | $\begin{array}{r} 129.00 \\ \text { Pair } \\ 399.00 \\ \text { Each } \\ \hline \end{array}$ |
| PARADIGM | Atom <br> Titan <br> Phantom <br> MINI-MkII <br> 3semkll <br> 5semk3 <br> $7 \mathrm{semk3}$ <br> 9semk3 <br> 11semk3 <br> Compact <br> Export <br> Esprit <br> Eclipse <br> Studio <br> AMS-200 <br> AMS-300 <br> CC-100 <br> CC-200 <br> SB-100 | $\begin{aligned} & \hline \text { Bass Ref. } \\ & \text { Bass Ref. } \\ & \text { Bass Ref. } \\ & \text { Bass Ref. } \\ & \text { Bass Ref. } \\ & \text { Bass Ref. } \\ & \text { Bass Ref. } \\ & \text { Bass Ref. } \\ & \text { Bass Ref. } \\ & \text { Bass Ref. } \\ & \text { Bass Ref. } \\ & \text { Bass Ref. } \\ & \text { Bass Ref. } \\ & \text { Bass Ref. } \\ & \text { In-Wall } \\ & \text { Inf. Bat. } \\ & \text { In-Wall } \\ & \text { In!. Baf. } \\ & \text { Ctr. Ch. } \\ & \text { Bass Ref. } \\ & \text { Ctr. Ch. } \\ & \text { Bass Ref. } \\ & \text { Bandpass } \\ & \text { Subwoof. } \end{aligned}$ | $51 / 2$ <br> $61 / 2$ <br> 8 <br> $61 / 2$ <br> 8 <br> 8 <br> $(2) 61 / 2$ <br> $(2) 8$ <br> $(2) 8$ <br> $61 / 2$ <br> 8 <br> $(2) 8$ <br> $(2) 8$ <br> $(2) 8$ <br> $61 / 2$ <br> 8 <br> $(2) 51 / 2$ <br> $(2) 51 / 2$ <br> 10 | 61/2 <br> 5 | Cone <br> Cone | $3 / 4$ $3 / 4$ $3 / 4$ 1 1 1 1 1 1 1 1 1 1 1 1 1 1 $3 / 4$ $3 / 4$ | Dome Dome Dome Dome Dome Oome Dome Dome Dome Dome Dome Dome Dome Dome Dome Dome Dome Dome |  | 60-20 <br> $\pm 2$ <br> $\mathbf{5 5 - 2 0}$ <br> $\pm 2$ <br> $40-20$ <br> $\pm 2$ <br> $48-20$ <br> $\pm 2$ <br> $38-20$ <br> $\pm 2$ <br> $32-20$ <br> $\pm 2$ <br> $34-20$ <br> $\pm 2$ <br> $32-20$ <br> $\pm 2$ <br> $28-20$ <br> $\pm 2$ <br> $40-20$ <br> $\pm 2$ <br> $28-20$ <br> $\pm 2$ <br> $34-20$ <br> $\pm 2$ <br> $28-20$ <br> $\pm 2$ <br> $25-20$ <br> $\pm 2$ <br> $55-20$ <br> $\pm 2$ <br> $45-20$ <br> $\pm 2$ <br> $70-20$ <br> $\pm 2$ <br> $60-20$ <br> $\pm 2$ <br> $36-100$ <br> $\pm 2$ |  | 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 15 | 3k 3k 2.5 k 2 k 2.5 k 2.2 k 1.8 k 2 k $550,1.9 \mathrm{k}$ 1.6 k 2 k 1.7 k $275,2.5 \mathrm{k}$ 2 k 1.5 k 2.8 k 2.8 k 100 |  | $10 \times 7 \times 8$ $13 \times 8 \times 10$ $19 \times 10 \times 12$ $15 \times 9 \times 10$ $21 \times 10 \times 12$ $33 \times 10 \times 12$ $35 \times 8 \times 15$ $37 \times 11 \times 15$ $44 \times 11 \times 16$ $16 \times 9 \times 12$ $24 \times 11 \times 14$ $38 \times 11 \times 15$ $40 \times 12 \times 17$ $44 \times 13 \times 17$ $12 \times 8 \times 3$ $13 \times 8 \times 3$ $6 \times 20 \times 7$ $6 \times 17 \times 15$ $17 \times 17 \times 19$ | Opt. <br> Opt. <br> Opt. <br> Opt. <br> Opt. <br> Opt. <br> Opt. <br> Opt. <br> Opt. <br> Opt., <br> Wood <br> Wood <br> Opt., <br> Wood <br> Opt., <br> Wood <br> Opt., <br> White <br> White <br> Opt. <br> Opt. <br> Opt. | Black Knit Black Knit Black Knit <br> Black Knit <br> Black <br> Knit <br> Black <br> Knit Black <br> Knit <br> Black <br> Knit <br> Black <br> Knit <br> Black <br> Knit <br> Kiack <br> Black <br> Knit <br> Black <br> Knit <br> Black <br> White <br> Metal <br> Metal <br> Black <br> Knit <br> Black <br> Knit <br> Black Knit <br> Knit | 9 $12^{1 / 2}$ 22 $17^{1 / 2} 2$ 24 35 43 50 68 22 35 62 73 93 7 8 9 10 42 |  |
| PARAOOX | Purpleheart | Pressure Release | 81/2 |  |  | 11/8 | Dome |  | $\begin{aligned} & 50-22 \\ & \pm 3 \end{aligned}$ | 89 | 50 | 2k | 4/3 | $11 \times 12 \times 16$ | $\begin{aligned} & \text { Opt.1. } \\ & \text { Wood } \end{aligned}$ | $\begin{array}{\|l} \hline \text { Black } \\ \text { Knit } \\ \hline \end{array}$ | 47 | $\begin{array}{r} 2100.00 \\ \text { Pair } \end{array}$ |
| $\begin{array}{\|l} \hline \text { PARAGON } \\ \text { ACOUSTICS } \end{array}$ | Jubilee <br> Rogent | Phase <br> Aligned <br> Aperlodic <br> 6th Order <br> Vented | $61 / 2$ <br> 7 |  |  | $3 / 4$ <br> 1 |  |  | $\begin{aligned} & 65-20 \\ & \pm 3 \\ & 20-20 \\ & \pm 3 \\ & \hline \end{aligned}$ | 85 91 | 25 | $\begin{aligned} & 2.6 \mathrm{k} \\ & 2.3 \mathrm{k} \end{aligned}$ | $8 / 5.5$ <br> $4 / 2.8$ | $\begin{aligned} & 16 \times 9 \times 10 \\ & 47 \times 10 \times 15 \end{aligned}$ | Opt. | Black <br> Knit <br> Black <br> Knit | 47 150 | $\begin{array}{r} 1250.00 \\ \text { Pair } \\ 2800.00 \\ \text { Pair } \end{array}$ |
| PARASOUND | AWM360 <br> AWS280 <br> AWM380 <br> AWM380T <br> CS/T-280 <br> CS/W-802 <br> CST-265 <br> CS/T-255 <br> CS/T-250 <br> GMAS-18 | $\begin{aligned} & \hline \text { Inf. Bat. } \\ & \text { Inf. Bat. } \\ & \text { Inf. Bal. } \\ & \text { Int. Bat. } \\ & \text { In-Wall } \\ & \text { In-Wail } \\ & \text { Subwoof. } \\ & \text { In-Wall } \\ & \text { In-Wall } \\ & \text { In-Wall } \\ & \text { Powered } \end{aligned}$ | $\begin{array}{\|l\|} \hline 4 \\ 51 / 4 \\ 51 / 4 \\ 51 / 4 \\ 8 \\ 8 \\ 61 / 2 \\ 51 / 4 \\ 51 / 4 \\ 18 \\ \hline \end{array}$ |  |  |  | Dome Cone Dome Oome Dome Dome Dome Dome | W | $\pm 5-20$ $\pm 3$ $55-20$ $\pm 3$ $48-20$ $\pm 3$ $48-20$ $\pm 3$ $36-22$ $\pm 3$ $29-180$ $\pm 3.5$ $42-22$ $\pm 3$ $54-22$ $\pm 3$ $70-20$ $\pm 4$ $20-80$ | $\begin{aligned} & 86 \\ & 88 \\ & 88 \\ & 88 \\ & 89 \\ & 89 \\ & 88 \\ & 87 \\ & 86 \end{aligned}$ | 10 <br> 10 <br> 10 <br> 10 <br> 10 <br> 10 <br> 10 <br> 10 <br> 10 <br> Inc. | 2.6 k 3 k 2.4 k 2.4 k 2.4 k 140 2.4 k 2.6 k 2.2 k $40-80$ 1Var.) | $8 / 6$ $8 / 6$ $8 / 6$ $8 / 6$ $8 / 6$ | $5 \times 7 \times 5$ $7 \times 9 \times 7$ $7 \times 9 \times 7$ $7 \times 9 \times 7$ $10 \times 14$ $10 \times 14$ $9 \times 12$ $8 \times 11$ $8 \times 11$ $30 \times 37 \times 17$ | Opt. <br> Metal <br> Opt., <br> Metal <br> Opt. <br> Metal <br> White <br> Metal <br> White <br> White <br> White <br> White <br> White <br> Opt. | Opt. <br> Metal <br> Opt., <br> Metal <br> Opt., <br> Metal <br> White <br> Metal <br> White <br> Metal <br> White <br> White <br> Metal <br> White <br> White <br> Gray <br> Knit | 5 10 11 $111 / 4$ 7 $91 / 2$ 6 5 5 175 |  |
| PAITERSON AUDIO SYSTEMS <br> (Continued) | Reference 1c <br> Refarence 1.5 | Vented <br> Trans. Line | $\begin{aligned} & 61 / 2 \\ & 6^{1 / 2} \end{aligned}$ |  |  | $\begin{aligned} & 1 \\ & 1 \end{aligned}$ | Dome <br> Dome |  | $\begin{aligned} & 49-25 \\ & \pm 2 \\ & 42-25 \\ & \pm 2 \end{aligned}$ | 888 | 30 | $\begin{aligned} & 1.7 \mathrm{k} \\ & 1.7 \mathrm{k} \end{aligned}$ | $\begin{aligned} & 8 / 5 \\ & 8 / 5 \end{aligned}$ | $\begin{aligned} & 16 \times 9 \times 13 \\ & 35 \times 9 \times 13 \end{aligned}$ | $\begin{aligned} & \text { Opt.. } \\ & \text { Wood } \\ & \text { Opt., } \\ & \text { Wood } \end{aligned}$ | Black Knit Black KnIt | $\begin{aligned} & \hline 26 \\ & 471 / 2 \end{aligned}$ | $\begin{array}{r} 895.00 \\ \text { Pair } \\ 1595.00 \\ \text { Pair } \end{array}$ |

## SHockingly Deep Bass

For a deeper appreciation of your favorite music and movies, add a DCM powered subwoofer to your audio or home theater syster. $\rightarrow$ Our top-of-the-iine SUB-712 and compact SUB-710 both unleash the full power of low frequencies encoded in today's digital software and broadcast signals. Plug a DCM powered subwoofer into your audio system and feel the gut-leve| energy of bass guitars, synthesizers and kick drums. Or savor the fundamental tones of pipe organ, acoustic and symphonic music. Hook up a DCM powered subwoofer to your home

theater and experience the bone-rattling roar of airplanes, car chases, starships and explosions, just like at the movies. $\rightarrow$ The SUB-712 (pictured) includes an 8 -inch active woofer and a 12 -inch passive radiator. The compact SUB-710, measuring only $15^{\prime \prime} \mathrm{H} \mathrm{G"W} \times 19^{\prime \prime} \mathrm{L}$, includes two active $6 \nless$-inch woofers. Both systems provide user-adjustable sensitivity, direct line inputs, pass-through connections, and limiter protection circuitry. $\rightarrow$ For more information, call DCM at 1-800-878-TIME. Or ask for a SUB-712 or SUB-710 demonstration at your DCM retailer today. The difference in deep bass is electrifying.




## LOW FREQUENCY TRADE-OFFS TRANSCENDED

Welcome the new Digital. Phase speaker systems. And say good-bye to the all too familiar trade-off between upper bass transients and deep bass extension. DIgital Phase brings you AcoustaREED ${ }^{\mathrm{TM}}$ technology, the carefully engineered coupling of a small bass driver with an elaborate network of acoustic reeds. You get upper bass
size. The approach is so unique, the


All that is good about music comes shining through.

Hear it for yourself. Call 615-894-5075 for your nearest DIGITAL Phase dealer.

## Digital Phase

2841 Hickory Valley Road Chattanooga, TN 37421
sound so refined, that a patent has been awarded. Distortion is lower. Dynamics are wider. A whole new level of bass accuracy and definition is achieved. You'll find Acousta-Reed
technology in each of the five DIGITAL
PHASE systems. But that's hardly their only virtue. Thanks to a very special titanium tweeter and superb phase coherence, DIgital Phase brings you uncommon sweetness and accuracy throughout the musical spectrum. A good recording is as it should be. So lifelike you feel you can reach out and touch the music as it touches you. -

| MANUFACTU |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| POSH <br> (Continued) | 835s <br> 835 mx <br> 835m | Celling; 2nd Drder Sealed Subwoof. Colling; 2nd Order Sealed Subwoof. Colling; 2nd Order Sealed Subw oof. | 8 <br> 8 <br> 8 |  |  |  |  |  | $\|$$35-120$ <br> $\pm 3$ <br> $35-120$ <br> $\pm 3$ <br> $35 \cdot 120$ <br> $\pm 3$$\|$ | 90 <br> 90 <br> 90 | 20 <br> 20 <br> 20 | $120$ | $\begin{array}{\|c\|} 4 / 4 \\ 4 / 4 \\ 4 / 4 \end{array}$ | $\begin{aligned} & 18 \times 18 \times 7 \\ & 18 \times 18 \times 10 \\ & 18 \times 18 \times 10 \end{aligned}$ | White <br> White <br> White | Metal <br> Meial <br> Metal | 15 $15$ $15$ |  |
| PRELUOE | The Reterence CPS-1 CPS-2 CPS-SAT CPS-CC CPS-W1 CPS-W2 CPS-A75 CPS-A100 CPS-W100 CPS-W200 M4 M3 M2 M1 MSAT MCC MSub 10 | Rear Ch. <br> Ctr. Ch. <br> Ampli- <br> fiabla <br> Woofer <br> Basa <br> Ampli- <br> fiable <br> Wooter <br> Base <br> Amp <br> Module <br> Amp <br> Module <br> Powered <br> Subwoof. <br> Powered <br> Subwoot. <br> 4th Order <br> Vented <br> 4th Order <br> Vented <br> 4th Order <br> Vented <br> 4th Order <br> Venled <br> Rear Ch. <br> Ctr. Ch. <br> Powered <br> Subwool. |  |  |  |  |  |  |  |  | 75 Inc. 100 Inc. 100 Inc. 200 Inc. |  |  |  |  |  |  | 12.800 <br> Pair <br> 650.00 <br> Pair <br> 1000.00 <br> Pair <br> 350.00 <br> Pair <br> 300.00 <br> Each <br> 750.00 <br> Pair <br>  <br>  <br> 1200.00 <br> Pair <br>  <br>  <br> 600.00 <br> Pair <br> 800.00 <br> Pair <br> 600.00 <br> Pair <br> 800.00 <br> Pair <br> 900.00 <br> Pair <br> 700.00 <br> Pair <br> 500.00 <br> Pair <br> 400.00 <br> Pair <br> 300.00 <br> Pair <br> 250.00 <br> Each <br> 500.00 <br> Each |
| PRES SPEAKERS | Mini S <br> Ibex <br> Mini Dual <br> Dual <br> Quad Dual <br> Classic 1 | Bass Ref. <br> Bass Ref. <br> Bass Ral. <br> Bass Ret. <br> Bass Ref. <br> Bass Ref. Sat. 8 Trans. Ling Subwoof. | $61 / 2$ 8 10 $12,61 / 2$ $(2) 12$, $61 / 2$ $(2) 10$ | $11 / 4$ $11 / 4$ $11 / 4$ $11 / 4$ $31 / 4$ | Dome <br> Donve <br> Dome <br> Oome <br> Dome | 1 1 $7 \times 3$ $7 \times 3$ $7 \times 3$ $3 / 4$ | Dome <br> Dome <br> Horn <br> Horn <br> Horn <br> Dome |  | $\begin{aligned} & 50-22 \\ & \pm 3 \\ & 40-22 \\ & 35-22 \\ & 30-22 \\ & 30-22 \\ & 24-25 \end{aligned}$ | $\begin{aligned} & 92 \\ & 92 \\ & 92 \\ & 92 \\ & 92 \\ & 88 \end{aligned}$ | 40 40 40 40 40 100 | 2k <br> 2k, 6k <br> 2h, 6k <br> 200,2k,6k <br> 200,2k,6k <br> 200,650, <br> 6k | $1 / 6$ $1 / 4$ $1 / 4$ $1 / 4$ $1 / 4$ $4 / 4$ | $16 \times 10 \times 8$ <br> $24 \times 12 \times 10$ <br> $26 \times 15 \times 14$ <br> $37 \times 15 \times 14$ <br> $55 \times 15 \times 14$ <br> Six Pieces | Oiled <br> Oak <br> Olled <br> Oak <br> Olled <br> Oak <br> Oiled <br> Oak <br> Oiled <br> Oak <br> Diled <br> Oak | Black <br> Poly. <br> Black <br> Poly. <br> Black <br> Poly. <br> Black <br> Poly. <br> Black <br> Poly. <br> Black <br> Poly. | $\begin{aligned} & \hline 15 \\ & 20 \\ & 28 \\ & 40 \\ & 55 \\ & 168 \\ & \text { Side } \end{aligned}$ | $\begin{array}{r} 350.00 \\ \text { Pair } \\ 475.00 \\ \text { Pair } \\ 590.00 \\ \text { Pair } \\ 750.00 \\ \text { Pair } \\ 990.00 \\ \text { Pair } \\ 2500.00 \\ \text { Sys. } \end{array}$ |
| PROAC | Tablette 3 <br> Studio 100 <br> Studio 200 <br> Response 1S <br> Response 2 <br> Response 3 <br> Response 3 <br> Signature <br> Response 4 | Tuned Port Tuned Port Tuned Port Tuned Port Tuned Port Tuned Port Tuned Port Tuned Port | 4 <br> 7 <br> 8 <br> 5 <br> 7 <br> (2)7 <br> (2) 7 <br> (2) 10 | $(2) 3$ | Domes | $3 / 4$ 1 1 $3 / 4$ $3 / 4$ 1 1 1 | Dome <br> Dome <br> Dome <br> Dome <br> Dome <br> Dome <br> Dome <br> Dome |  | $\begin{aligned} & 60-20 \\ & \pm 5 \\ & 40-20 \\ & \pm 5 \\ & 30-20 \\ & \pm 5 \\ & 50-20 \\ & \pm 5 \\ & 40-20 \\ & \pm 5 \\ & 30-20 \\ & \pm 5 \\ & 30-20 \\ & \pm 5 \\ & 20-20 \\ & \pm 5 \end{aligned}$ | 89 88 89 86 87 88 | $\begin{aligned} & \hline 30 \\ & 50 \\ & 100 \\ & 50 \\ & 75 \\ & 100 \\ & 100 \\ & 150 \end{aligned}$ | $5 k$ $2.5 k$ $2.5 k$ $5 k$ $5 k$ $2.5 k$ $2.5 k$ $100,1.5 k$, $5 k$ | $8 /$ <br> $8 /$ <br> $8 /$ <br> $8 /$ <br> $8 /$ <br> $8 /$ <br> $8 /$ <br> $8 /$ | $11 \times 7 \times 9$ $16 \times 8 \times 10$ $43 \times 12 \times 13$ $12 \times 7 \times 9$ $18 \times 9 \times 11$ $48 \times 11 \times 12$ $48 \times 11 \times 12$ $65 \times 14 \times 17$ | Opt. <br> Wood <br> Opt., <br> Wood <br> Opt., <br> Wood <br> Opt., <br> Wood <br> Opt., <br> Wood <br> Opt. <br> Wood <br> Opt., <br> Wood <br> Opt., <br> Wood | Black Knit Black Knit Black Knit Black Knit Black Knit Black Knit Black Knit Black Knit | $\begin{aligned} & \hline 12 \\ & 25 \\ & 50 \\ & 15 \\ & 30 \\ & 100 \\ & 100 \\ & 280 \end{aligned}$ | $\begin{array}{r} 950.00 \\ \text { Pair } \\ 1500.00 \\ \text { Pair } \\ 3000.00 \\ \text { Pair } \\ 1800.00 \\ \text { Pair } \\ 3000.00 \\ \text { Pair } \\ 6500.00 \\ \text { Pair } \\ 10,000 . \\ \text { Pair } \\ 18,000 . \\ \text { Pair } \end{array}$ |
| $\begin{aligned} & \text { PROFESSIDNAL } \\ & \text { TECHNOLOGIES } \end{aligned}$ | PT2650 <br> PT6521 <br> PT 821 <br> PT8341 | Tunad Port Tuned Port Tuned Port Tuned Port | $\begin{aligned} & (2) 61 / 2 \\ & 61 / 2 \\ & 8 \\ & 8 \end{aligned}$ | $41 / 2$ | Cons | $\begin{aligned} & 11 / 4 \\ & 1 \\ & 11 / 4 \\ & 1 \end{aligned}$ | Dome <br> Dome <br> Dome <br> Dome | No <br> No <br> No | $\begin{aligned} & 40-20 \\ & \pm 3 \\ & 45-20 \\ & \pm 3 \\ & 31-20 \\ & \pm 3 \\ & 37 \cdot 20 \\ & \pm 3 \end{aligned}$ | $\begin{aligned} & 89 \\ & 91 \\ & 90 \end{aligned}$ | $\begin{aligned} & 10 \\ & 10 \\ & 10 \\ & 10 \end{aligned}$ | 3k 3k 2k 300,3k |  | $\begin{aligned} & 12 \times 14 \times 17 \\ & 13 \times 12 \times 17 \\ & 10 \times 13 \times 35 \\ & 13 \times 12 \times 27 \end{aligned}$ | Opt. <br> Opt. <br> Opt. <br> Opt. | Dpt. <br> Dpt. <br> Opt. <br> Opt. | $\begin{aligned} & 35 \\ & 20 \\ & 40 \\ & 55 \end{aligned}$ | $\begin{array}{r} 679.00 \\ \text { Pair } \\ 579.00 \\ \text { Pair } \\ 849.00 \\ \text { Pair } \\ 899.00 \\ \text { Pair } \end{array}$ |




# a singular vision of excellence. 


the new products out there. But at solus, we thrive on innovations - technical and musical.

Solus' proprietary planar ribbon technology, for example, produces music so smooth and with such detail it raises musical enjoyment to new levels.

It takes high-end audio off the floor while setting the reference standard for in-wall speaker performance and architectural flexibility

Solus - a singular vision of excellence.

## solus

\begin{tabular}{|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|c|}
\hline MANUFACTU \&  \& \[
7
\] \&  \&  \&  \&  \& \[
7
\] \&  \&  \&  \&  \&  \&  \&  \&  \& \& \&  \\
\hline RBH SOUND (Continued) \& \begin{tabular}{|l|l|}
\hline 82 \& Inf. Baf. \\
63 \& Inf. Baf. \\
53 \& Vented \\
SW-12A \& Subwoof. \\
VDS-15 \& Subwoof. \\
8000 \& \begin{tabular}{l} 
Tuned \\
Dual \\
Vent
\end{tabular} \\
\hline
\end{tabular} \& \begin{tabular}{l}
8 \\
6 \\
5 \(1 / 2\) \\
12 \\
15 \\
(2) 8
\end{tabular} \& (2) \(61 / 2\) \& Cones \& \[
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\& 3 / 4 \\
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\end{aligned}
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No \\
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\end{tabular} \& \[
\begin{aligned}
\& 45-22 \\
\& \pm 3 \\
\& 55-22 \\
\& \pm 3 \\
\& 75-20 \\
\& \pm 3 \\
\& 25-85 \\
\& \pm 3 \\
\& 25-85 \\
\& \pm 3 \\
\& 30-25 \\
\& \pm 3
\end{aligned}
\] \& \[
\begin{aligned}
\& 89 \\
\& 89 \\
\& 90 \\
\& 89 \\
\& 89 \\
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\end{aligned}
\] \& \[
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\& 20 \\
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\] \& \begin{tabular}{l}
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85 \\
200,3k
\end{tabular} \& \(8 / 6\)
\(6 / 4\)
\(8 / 8\)
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8
8
\(8 / 4\) \& \begin{tabular}{l}
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\begin{aligned}
\& 16 \times 10 \times 8 \\
\& 12 \times 8 \times 7 \\
\& 6 \times 8 \times 5 \\
\& 18 \times 18 \times 20
\end{aligned}
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\]
\end{tabular} \& \begin{tabular}{l}
Opt., Dak Opt. Dak Opt. \\
Opt., Dak Dpt., Dak Lacq. Dak
\end{tabular} \& \begin{tabular}{l}
Black \\
Black \\
Opt. \\
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Black
\end{tabular} \& \begin{tabular}{l}
22 \\
121/2 \\
5 \\
57 \\
73 \\
87
\end{tabular} \& \& \[
\begin{array}{r}
395.00 \\
\text { Pair } \\
295.00 \\
\text { Pair } \\
150.00 \\
\text { Pair } \\
495.00 \\
\text { Each } \\
795.00 \\
\text { Each } \\
2600.00 \\
\text { Pair }
\end{array}
\] \\
\hline RCA \& \begin{tabular}{|l|l|}
\hline SP2700T \& Air Sus. \\
SP5100T2 \& Vented \\
SP5060S2 \& \begin{tabular}{l} 
Vented; \\
Surround \\
SP5065S2
\end{tabular} \\
Vented; \\
SP5050C \& \begin{tabular}{l} 
Surtound \\
Vented \\
Ctr. Ch.
\end{tabular} \\
\hline
\end{tabular} \& \begin{tabular}{l}
8 \\
B \\
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\(31 / 2\) \\
(2)21/2
\end{tabular} \& \begin{tabular}{l}
4 \\
4 \\
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\end{tabular} \& \begin{tabular}{l}
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\begin{aligned}
\& 50-20 \\
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\& \pm 3 \\
\& 100-10 \\
\& \pm 3 \\
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\& \\
\& 100-5 \\
\& \pm 3 \\
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\] \& \[
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\& 90 \\
\& 90 \\
\& 90 \\
\& 90 \\
\& 94
\end{aligned}
\] \& \[
\begin{aligned}
\& 10 \\
\& 10 \\
\& 5 \\
\& 5 \\
\& 5
\end{aligned}
\] \& 1k,5k
2k, \(\mathbf{k}\)

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& 8 / 8 \\
& 8 / 8 \\
& 8 / 8 \\
& 8 / 8
\end{aligned}
$$ \& \[

$$
\begin{aligned}
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& 38 \times 6 \times 11 \\
& 6 \times 4 \times 3 \\
& 6 \times 4 \times 3 \\
& 5 \times 17 \times 6
\end{aligned}
$$
\] \& Oak

Gray
Gray
Oft.
White

Gray \& | Black Knit |
| :--- |
| Gray |
| Knit |
| Gray |
| Metal |
| OH- |
| White |
| Metal |
| Gray |
| Knit | \& 44

29
2
2
5 \& \& 599.00
Pair
599.00
Pair
149.00
Each
149.00
Each
199.00
Each <br>

\hline RDL ACOUSTICS \& | RDL FS-1 | Ac. Sus. |
| :--- | :--- |
| RDL F-1 | Ac. Sus. |
| RDL B-1 | Ac. Sus. |
| RDL S-1 | Ac. Sus. |
| RDL AV-1 | Ac. Sus. |
| RDL | Ac. Sus. |
| Three-Piece |  |
| System | Subwoof. |
| RDL | Home Th. |
| Home Theater | Ac. Sus.; |
| Set | 5 Sats. |
|  | Subwoof. | \& 8

8
8
8
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8
8 \& 4

4 \& \begin{tabular}{l}
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 \&  \& 

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Dome <br>
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15
\end{tabular} \& $2 k$

$2 k$
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$8 / 5$
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$8 / 5$

$8 / 5$ \& | $\begin{aligned} & \hline 25 \times 11 \times 11 \\ & 25 \times 11 \times 11 \\ & 20 \times 11 \times 11 \\ & 12 \times 12 \times 12 \\ & 12 \times 7 \times 4 \end{aligned}$ |
| :--- |
| Three Pieces |
| Six Pieces | \& | Laca. |
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| Chrry |
| Lacq. |
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| Black |
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| Lacq. |
| Black |
| Lacq. | \& Black Knit Black Knit Black Knit Black Knit Black Knit Black Knit Knit \& | 32 |
| :--- |
| 31 |
| 27 |
| 19 |
| 8 |
| 321/2 |
| Sys. |
| 561/2 |
| Sys. | \& \& 549.00

Pair
549.00
Pair
449.00
Pair
449.00
Pair
99.00
Each
385.00
Sys.
680.00
Sys. <br>

\hline RECOTON \& | SPX110 | Powered |
| :--- | :--- |
| SPX100 |  |
| V632A | Powered <br> W100 |
|  | Ar Sus. <br> Powered <br> Bass Ref. | \& \[

$$
\begin{aligned}
& \hline 4 \\
& 4 \\
& 51 / 4 \\
& 5
\end{aligned}
$$

\] \& \& \& \[

$$
\begin{aligned}
& \hline 2 \\
& 2 \\
& 21 / 4
\end{aligned}
$$

\] \& | Cone |
| :--- |
| Cone |
| Cone | \& W,T \& | 50-15 |
| :--- |
| 50-15 |
| 50-20 |
| $\pm 5$ |
| 20-20 | \& 85 \& 10

Inc.
12
inc.
12

Inc. \& 800 \& $$
\begin{array}{|l|}
\hline 8 \\
8
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$$ \& \[

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& 16 \times 7 \times 7 \\
& 9 \times 6 \times 6
\end{aligned}
$$

\] \& Matte Black Matte Black \& | Black |
| :--- |
| Knit |
| Black |
| Mesh | \& $121 / 2$

7 \& \& $$
\begin{array}{r}
129.99 \\
\text { Pair } \\
99.99 \\
\text { Pair } \\
199.95 \\
\text { Pair } \\
249.00 \\
\text { Pair }
\end{array}
$$ <br>

\hline REGA RESEARCH \& | ELA | Trans. <br> Line <br> Kyte <br> EL8 |
| :--- | :--- |
|  | Trans <br> Line <br> Trans. <br> Line | \& \[

$$
\begin{aligned}
& 51 / 2 \\
& 51 / 2 \\
& 51 / 2
\end{aligned}
$$

\] \& \& \& \[

$$
\begin{array}{|l|}
\hline 1 \\
1 \\
1
\end{array}
$$
\] \& Dome \& \& \& 85

100 \& $$
\begin{aligned}
& 25 \\
& 20 \\
& 20
\end{aligned}
$$ \& \& \[

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\begin{aligned}
& \hline 8 / 1 \\
& 8 / 4 \\
& 8 / 4
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 12 \times 8 \times 8 \\
& 29 \times 7 \times 8
\end{aligned}
$$

\] \& | Opt. |
| :--- |
| Black |
| Black | \& Black Knit Black Knit Black Knit \& $71 / 2$

$171 / 2$ \& \& $$
\begin{array}{r}
\hline 1250.00 \\
\text { Pair } \\
595.00 \\
\text { Pair } \\
895.00 \\
\text { Palr }
\end{array}
$$ <br>

\hline \[
$$
\begin{aligned}
& \text { REWAISSANCE } \\
& \text { ACOUSTICS }
\end{aligned}
$$

\] \& | Companion I | Ac. Sus. |
| :--- | :--- |
| Companion II | Ac. Sus. |
| Companion | Ac. Sus. |
| MIni-Monitor | Sat. |
| Companion | Ac. Sus. |
| Bass Modules | Subwool. | \& \[

$$
\begin{aligned}
& 61 / 2 \\
& 8 \\
& 61 / 2 \\
& 10
\end{aligned}
$$

\] \& \& \& \[

$$
\begin{aligned}
& 3 / 4 \\
& 1 \\
& 3 / 4
\end{aligned}
$$

\] \& | Dome |
| :--- |
| Dome |
| Dome | \& \& \[

$$
\begin{aligned}
& 65-20 \\
& \pm 3 \\
& 55-20 \\
& \pm 3 \\
& 70-20 \\
& \pm 3 \\
& 38-100 \\
& \pm 3 \\
& \hline
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 88 \\
& 89 \\
& 88 \\
& 88
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 15 \\
& 15 \\
& 15 \\
& 40
\end{aligned}
$$
\] \& 3k

$3 k$
$3 k$
$100,0 \mathrm{pt}$. \& $8 / 5$
$8 / 5$
$8 / 5$

$8 / 5$ \& \[
$$
\begin{aligned}
& 16 \times 10 \times 8 \\
& 19 \times 12 \times 10 \\
& 12 \times 8 \times 7 \\
& 18 \times 18 \times 16
\end{aligned}
$$

\] \& | Opt., |
| :--- |
| Ven. |
| Opt., |
| Ven. |
| Opt., |
| Ven. |
| Opt., |
| Ven. | \& Opt. Knit Opt., Knit Opt., Knit Opt., Knit \& | 18 |
| :--- |
| 271/2 |
| 11 |
| $371 / 2$ | \& \& \[

$$
\begin{array}{r}
450.00 \\
\text { Pair } \\
600.00 \\
\text { Pair } \\
395.00 \\
\text { Pair } \\
695.00 \\
\text { Pair }
\end{array}
$$
\] <br>

\hline RMS AUDIO \& | Silhouette 1 | Ac. Sus. |
| :--- | :--- |
| Silhouette 1.5 | Tuned |
| Silhouette | Port |
| Inf. Bal. |  |
| RS-II |  |
| Signature One | Tuned |
| MM-1 | Port |
| RM-1 | Ac. Sus. |
| RM-2 | Tuned |
| Reference | Port |
| Monitor III | Tuned |
| Ranted |  |
| Rort |  | \& \[

$$
\begin{aligned}
& \hline 8 \\
& 10,8 \\
& 10,8 \\
& 8 \\
& 51 / 4 \\
& (2) 10 \\
& 10, \\
& (2) 8 \\
& (2) 10
\end{aligned}
$$

\] \& | 3 |
| :--- |
| $61 / 2$ |
| 61/2,4 |
| 8,3 | \& | Dome |
| :--- |
| Cone |
| Cones |
| Cone, |
| Dome | \& 1

1
$1 / / 8$
1
1
$1,11 / 4$
1
$1 \frac{1 / 8}{1}$ \&  \& M, T

T \& $$
\begin{aligned}
& \hline 35-22 \\
& \pm 3 \\
& 25-20 \\
& 25-20 \\
& \pm 3 \\
& 30-20 \\
& \pm 3 \\
& 55-22 \\
& 25-25 \\
& \pm 3 \\
& 25-25 \\
& \pm 3 \\
& 22-20
\end{aligned}
$$ \& \[

$$
\begin{aligned}
& 92 \\
& 91 \\
& 92 \\
& 90 \\
& 90 \\
& 93 \\
& 94 \\
& 92
\end{aligned}
$$
\] \& 25

25
50
25
25
20
20
25 \& 2.2k
$120,2.2 k$
120,700,
$4.5 k$
$2.2 k$
$2.2 k$
120,500,
$4.5 k$
120,500,
$4.5 k$
100,700
$2.2 k, 4.5 k$ \& $8 / 6.4$
$8 / 6$
$8 / 6.2$
$8 / 6.4$
$4 / 3.8$
$7.3 / 4$
$7.3 / 4$

$8 / 6$ \& \[
$$
\begin{aligned}
& \hline 10 \times 12 \times 19 \\
& 13 \times 14 \times 32 \\
& 15 \times 18 \times 50 \\
& 12 \times 17 \times 16 \\
& 8 \times 9 \times 12 \\
& \text { Two Pieces } \\
& \text { Per Side } \\
& \text { Two Pieces } \\
& \text { Per Side } \\
& \text { Two Pieces } \\
& \text { Per Side }
\end{aligned}
$$

\] \& | Oiled |
| :--- |
| Oak |
| Opt., |
| Wood |
| Olied |
| Oak |
| Opt. |
| Wood |
| Mribl. |
| Olied |
| Wal. |
| Oiled |
| Wal. |
| Opt. |
| Wood | \& Black Knit Black Knit Black Knit Black Knit Black Knit Black Knit Black Knit Black Knit \& \[

$$
\begin{aligned}
& \hline 24 \\
& 40 \\
& 105 \\
& 47 \\
& 24 \\
& \\
& 340 \\
& \text { Sys. } \\
& \text { 390 } \\
& \text { Sys. } \\
& \text { 395. } \\
& \text { Sys. } \\
& \hline
\end{aligned}
$$

\] \& \& \[

$$
\begin{array}{r}
\hline 1450.00 \\
\text { Pair } \\
1950.00 \\
\text { Pair } \\
2895.00 \\
\text { Pair } \\
3500.00 \\
\text { Pair } \\
\text { 1995.00 } \\
\text { Pair } \\
5700.00 \\
\text { Sys. } \\
\text { 6900.00 } \\
\text { Sys. } \\
\text { 8200.00 } \\
\text { Sys. }
\end{array}
$$
\] <br>

\hline ROBERTS ARCHITECTURAL AUDIO \& | RAB50 | In-Wall |
| :--- | :--- |
| RAB20 | Int. Baf. |
| In-Wall |  |
| RA620 | Int. Baf. |
| RA600 | In-Wall |
| Int. Baf. |  |
| MP260 | In-Wall |
| Int. Baf. |  |
| RABSW | In-Wall |
|  | Int. Baf. |
|  | In-Wall |
|  | Subwoof. | \& \[

$$
\begin{aligned}
& \hline 8 \\
& 8 \\
& 61 / 2 \\
& 61 / 2 \\
& 61 / 2 \\
& 8
\end{aligned}
$$

\] \& \& \& \[

$$
\begin{aligned}
& 3 / 4 \\
& 3 / 4 \\
& 3 / 4 \\
& 3 / 4 \\
& 21 / 2
\end{aligned}
$$

\] \& | Dome |
| :--- |
| Dome |
| Dome |
| Dome |
| Cone | \& \& \[

$$
\begin{aligned}
& 28-30 \\
& \pm 3 \\
& 35-30 \\
& \pm 3 \\
& 50-30 \\
& \pm 3 \\
& 50-20 \\
& \pm 3 \\
& 50-17 \\
& \pm 3 \\
& 30-150 \\
& \pm 3
\end{aligned}
$$
\] \& 90

90
89
89
90

89 \& $$
\begin{aligned}
& 4 \\
& 4 \\
& 4 \\
& 4 \\
& 4 \\
& 4
\end{aligned}
$$ \& \[

$$
\begin{aligned}
& 3.5 k \\
& 3.8 k \\
& 4.2 k \\
& 5 k \\
& 4 k \\
& 150
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& \hline 8 / 5.5 \\
& 8 / 6 \\
& 8 / 6 \\
& 8 / 6 \\
& 8 / 6 \\
& 8 / 6
\end{aligned}
$$

\] \& \[

$$
\begin{aligned}
& 14 \times 10 \times 3 \\
& 14 \times 10 \times 3 \\
& 14 \times 10 \times 3 \\
& 14 \times 10 \times 3 \\
& 14 \times 10 \times 3 \\
& 14 \times 10 \times 3
\end{aligned}
$$

\] \& | White |
| :--- |
| White |
| White |
| White |
| White |
| White | \& White Metal White Metal White Metal White Metal White Metal White Metal \& \[

$$
\begin{aligned}
& 61 / 2 \\
& 6 \\
& 51 / 2 \\
& 51 / 2 \\
& 51 / 2 \\
& 12
\end{aligned}
$$

\] \& \& \[

$$
\begin{array}{r}
649.00 \\
\text { Palr } \\
499.00 \\
\text { Pair } \\
299.00 \\
\text { Pair } \\
249.00 \\
\text { Pair } \\
199.00 \\
\text { Pair } \\
\text { Eag.00 } \\
\hline
\end{array}
$$
\] <br>

\hline
\end{tabular}





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"What if, at heart, the real passion of an amplifier manufacturer wasn't electronics, but MUSIC? Such a company might one day offer a loudspeaker worthy of its reputation. That day has come for Counterpoint, whose towering first speaker takes an immediate place among the finest of any design at any price." Lawrence B. Johnson, Audio Video Interiors, January '93.
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"The Continental has a way of sonically disappearing into the room - of disassociating its physical self from the recorded event to where, if the eyes are closed, only the music remains. Its presentation and the vividness of its imagery is tactile to a degree that I am tempted to say that "seeing is believing." -Martin G. DeWulf, Bound for Sound, No. 6a/92.

"...The sound had an airy, detached-from-the-speakers quality that's rare in speakers of their size, bass response, and dynamic capability..." -Robert Deutsch, Stereophile, April '92, Vol. 15, No. 4.
"The Metropolitan's cabinetry and workmanship are toprate...I particularly liked their imaging capabilities and ability to let you listen through the systems and hear subtleties in a recording...the Metros are serious high-end contenders."-D.B. Keele, Jr., Audio , July '93.
"...The impressive and reasonably priced Metros were driven by Counterpoint's gorgeous new monoblocks." Robert Harley, Stercophile, April '92, Vol. 15, No. 4.
"The pride of this new line is an imposing, beautifully crafted tower dubbed the Metropolitan (\$6000/pair)



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rivals speakers mary bimes their size
Moreover, they plove that, at infnity, cool things come in $\boldsymbol{r}^{\prime \prime} l$ size packages.
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Listening to the IC-70 is ony connoisseur's pleasant surprise; any composition sounds smooth and warm.
The IC-70 has been designed for multi-voltage operation all around the globe. It has four source inputs: Tuner/CD/Aux and Tape Monitor.
This integrated amplifier should complement any of today's home decor. The front glass panel lights up the company logo and the piano-finish lacquer sides give the IC-70 a very attractive look.

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## MACH 1 Acoustics DM-10

MACH / Acoustics, RR 2, Box 334A, Witton. NH 03086. DM-IO floorstanding 3-way loudspeaker system, with accessory granite base and grille, $\$ 7995.00$ the pair. Tested samples on loan from mamufacturer.

Let me say it before we get involved in the details: this is one of the finest loudspeakers known to me, regardless of price. Like everything else in this world, it has its limitations, but those limitar tions are intrinsic to the basic concept and intended purpose of the speaker; they aren't design faults. The speaker is intended for extremely refined, high-resolution playback at not excessively high levels in not excessively large spaces, and it accomplishes that faultlessly.

The key to the design is the choice of drivers. Mare McCalmont, the designer of the DM-10 (he is a Marine flier turned Pan American pilot turned audio entrepreneur), choose the Accuton $1^{\prime \prime}$ inverted-dome tweeter and $31 / 2$ " inverted-dome midrange, and a $91 / 2^{\prime \prime}$ Dynaudio woofer. The Accutons have ceramic diaphragms made by vapor deposition and are billed to the manufacturer at approximately $\$ 160$ and $\$ 200$, respectively. They are quite fragile and need to be crossed over just so to keep them out of trouble. The Dynaudio is also ridiculously expensive, so that Marc pays over $\$ 1000$ up front for drivers before he has even started to put other parts into a pair of speakers. Welcome to the world of High End. I must say, however, that these are better drivers than you get in say, a Wilson WATT.

The cabinet of the DM-10 has 1 " walls, except the front baffle, which is made of $1 / 4^{\prime \prime}$ damped laminate. This guy doesn"t fool around. The dimensions of the box are $44^{\prime \prime}$ high by $11^{\prime \prime}$ wide by $14 \frac{1}{2 \prime} 2^{\prime \prime}$ deep: the front edges are rounded; the finish is in your choice of veneers: the grille is optional, the basic design having been conceived with fully exposed drivers. The woofer is located only a few inches above floor level to avoid "floor bounce" (see the ACI G3 review above); the midrange and tweeter sit high and are offset inboard, resulting in a mirror-image pair. The woofer is in a sealed enclosure; the crossover slopes are fourth-order ( 24 dB per octave): the network is made with air-core inductors (except in the woofer circuit) and polypropylene capacitors; the crossover frequencies are approximately 250 Hz and 3 kHz . The general design philosophy is to be textbook correct and never mind the cost. No tricks, no surprises, no compromises.

I found only two basic design characteristics that !-putting myself in the place of a purchaser-would have wished to see improved at this exalted price level. One is the bass, which is very clean and well-controlled but could go deeper in a box of this size. (An off-t he shelf wooter, no matter how costly and how magnificently made, hardly ever has the exact Thiele-Small specs for the particular system optimization one needs.) The near-field response I measured was flat down to an $\mathrm{f}_{3}$ of 44 Hz and declined 12 dB per octave below that-a classic sealed-box protile. The impedance curve indicates that the box is tuned to 35 Hz , so the system must be slightly overdamped. As the near field response at 30 Hz is only 10 dB down. the "room gain" in smallish rooms should bring it up a tad, but in my big room I would have preferred stronger bass. The other small weakness of the design is that the little Accuton tweeter is somewhar deficient in power handling, so that you have to watch the level in opera recordings, for example, because the soprano ${ }^{\circ}$ fortissimo high notes tend to sound a bit strained if you turn up the volume. This is a medium-signal, rather than a large-signal, transducer.

That said. I must then immediately add that at normal to moderately high levels the sound of the DM-10 is exquisitely beautiful and transparent, absolutely worldclass. Both texture and

## The Aldilo Iritic

structure--to use the John Eargle terminology which is so superior to the high-end tweako vocabulary-are as accurately reproduced as anyone could wish for. Furthermore, the crossover design and driver mounting/positioning are such that the speaker isn't the least bit temperamental when it comes to placement-the soundstage doesn't collapse and the balance doesn't go to hell when you move the cabinets eight inches this way or that. (Marc McCalnont has written an entire manual on room acoustics and speaker placement, by the way.)

In measuring the 1 -meter response of the speaker with the MLS technique. I didn't run into the same problem as I did with the ACI G3, although the vertical distance between woofer and midrange is even greater in the case of the DM-10. The much steeper crossover slopes are probably the reason. On the tweeter axis, the response was $\pm 3 \mathrm{~dB}$ from 300 Hz to 20 kHz which is even better than you'd think because in the crucial three octaves from $1 \mathrm{kH} \angle$ to 8 kHz the deviation from absolute flatness was only $\pm 1.25 \mathrm{~dB}$. And that's not all. There's hardly any change in the response up to 10 kHz at $30^{\circ}$ off axis; only the 10 to 20 kHz response starts to slope downward a bit. No wonder the speaker sounds great.

In the time domain, I observed nothing that could change my high opinion of the DM-10. Pulse coherence was of course nil; it's a spread-out 3 -way system with high-order crossovers to begin with, and a positive-going pulse fushes the tweeter diaphragm inward, whereas the midrange and woofer diaphragm move outward. It's academic; the proof of the pudding is in the superior frequency response on and off axis. I did see just a tiny bit of garbage between tone-burst envelopes but not enough to altribute any importance to.

The impedance characteristics of the speaker indicate the need for an amplifier of good but not exceptional current capability; above the impedance swings due to the box, the magnitude stays between 3 and 8 ohms and the phase within $\pm 25^{\circ}$. Efficiency is of the order of 87 dB , which is about average for speakers in this format.

Where do I rank the MACH I Acoustics DM-10? If sheer transparency, refinement, and naturalness of sound are the top priorities, it ranks very close to the top. I haven't tested everything, of ${ }^{\circ}$ course, but its only competitoon known to me in that super-finesse category is the Win SM-10. It, on the other hand, the big sound, lifesize dynamics, deep bass, and generally awesome impact are the desire traits, then it lags behind the Waveform Mach 7, the "Carver Amazing Loudspeaker" Platinum Mark IV, and other of that ilk not yet reviewed, which are slightly cruder in sonic texture, at least in my opinion. In any event, although the DM-10 is fairly priced considering the manufacturer's cost of parts and labor and the dealer"s normal markup, it's still a classic case of "if you have to ask the price you can't afford it."



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5883 North Victoria Dr.
Indianapolis, Ind. 46208
FAX: (317) 299-5578

## Gertner Audio

991 Bushkill Dr
Easton, Pa. 18042

Gillum Loudspeaker
Systems
P.O. Box 123

Ridgedale, Mo. 65739
GNP Loudspeakers
1254 East Colorado Blvd
Pasadena, Cal. 91106
FAX: (818) 577-4263

## Golden String

P.O. Box 2439

Redmond, Wash. 98073
FAX: (206) 868-7339

## Goldmund

1100 Stewart Ave.
Garden City, N.Y. 11530
FAX: (516) 745-0780

## Goldring

See Music Hall

## Gold Sound

P.O. Box 141

Englewood, Colo. 80151

## Gordon Instruments

P.O. Box 150644

Nashville, Tenn. 37215

## Gradient

See Quad

## Grado Laboratories

4614 Seventh Ave.
Brooklyn, N.Y. 11220

## Joseph Grado

Signature Products
921 Tice PI.
Westfield, N.J. 07090
Graham Engineering
1 Baron Park, \#33
Burlington, Mass. 01803
FAX: (617) 229-7832

## Greencorp Magnetics

1015 W. Newport Ctr., 105
Deerfied Beach, Fla. 33442
FAX: (305) 429-9214

## Green Mountain Audio

P.O. Box 528

Green Mountain Falls, Colo.
80819


Gryphon Audio Designs
12629 Larchmere Blva
Cleveland Ohio 44120
FAX: (216) 791-3131
Reuben Guss Enterprises
215 West 92nd St.
New York, N.Y. 10025
H
Hafler
613 South Rockford Dr
Tempe, Ariz. 85281
FAX: (602) 984-1528

## Hales Audio

700 Harvest Park Dr
Suite H
Brentwood, Cal. 94513
Hanks Electric Co.
757 Montrose St
Clermont, Fla. 34711
Harbeth Acoustics
See Golden String

## Harman Kardon

8380 Balboa Blva.
Northridge, Cal. 91325

## Harmonic Precision

427 South Upper
Lexington, Ky. 40508

## Harms Sound Labs

2016 Laporte Ave
Fort Collins, Colo. 80521
FAX: (303) 482-0730
Harrison Laboratories
P.O. Box 1349

Parker, Colo. 80134

## Hartley Products

P.O. Box 4794

Wilmington, N.C. 28406
FAX: (919) 392-1077

## HeadRoom

P. O. Box 6549

611 North Wallace Ave
Bozeman, Mont. 59771

## High Biscus

Audio Systems
P.O. Box 441

Butler, Pa. 16001

## Hinson Audio

P.O. Box 32545

9665 Bayview Ave
Richmond Hill, Ont
Canada L4C 0A2

## Hoviand

P.O. Box 629

Culver City, Cal. 90232

## Hsu Research

20013 Rainbow Way
Cerritos, Cal. 90701
FAX: (310) 924-7550

## I

Icon Acoustics
13 Fortune Dr
Billerica, Mass. 01821
keda
See Axiss Distribution

## Immedia

2629 Mabel St
Berkeley, Cal. 94702
FAX: (510) 654-9039
Impulse
Route 2, Box 477
Dover, Ark. 72837
Incus Speaker Systems
5195 Main St.
Williamsville, N.Y. 14221
FAX: (800) 446-0065
Infinity Systems
9409 Owensmouth Ave
Chatsworth, Cal. 91311

## Intersonics

3453 Commercial Ave
Northbrook, III. 60062

## In-Wall Audio

5214 134th PI. N.E. Bellevue, Wash. 98005
FAX: (206) 861-7619

## Island Audio

49 Cedar Swamp Rd
Glen Cove, N.Y. 11542
FAX: (516) 676-7861
Itone Audio
3429 Morningside Dr
El Sobrante, Cal. 94803
FAX: (510) 232-3837

## $J$

Jackson Loudspeaker Co.
4524 North 35th PI
Phoenix, Ariz. 85018

## Jamo

425 Huehl Rd., Bldg. 8
Northbrook, III. 60062

## Janis

See John Marovskis
JBL Consumer Products
240 Crossways Park West Woodbury, N.Y. 11797

## Jensen

25 Tri-State Intl. Office Gir Suite 400
Lincolnshire, III. 60069

## JK Audio

2701 North 45th Rd.
Sandwich, III. 60548

## JMiab

See Keats and Assoc

## Joseph Audio

2 Pineridge Rd
White Plains, N.Y. 10603
FAX: (212) 724-2509

## Joule Electra

222 Post Oak Lane
North Augusta, S.C. 29841 FAX: (803) 279-6461

JPW
See Music Hall

JRM Engineering
3716 Broadway N.E.
Knoxville, Tenn. 37917

## JS Audio

643 Speedwell Ave
Morris Plains, N.J. 07950

## JVC

41 Slater Dr
Elmwood Park, N.J. 07407

## K

KAB Electro-Acoustics
P.O. Box 2922

Plainfield, N.J. 07062
George Kaye Audio Labs
368 Third Ave.
New York, N.Y. 10016

## Keats and Associates

14038 Tanglewood Ct.
Dallas, Tex. 75234
FAX (214) 243-6081

KEF
1701 Touchstone Rd
Colonial Heights, Va. 23834

## Kenwood

2201 East Dominguez St Long Beach, Cal. 90810

## Kimber Kable

2752 South 1900 West
Ogden, Utah 84401
Kinergetics Research
4260 Charter St.
Vernon, Cal. 90058
FAX: (213) 582-9434
Kinetic Audio
P.O. Box 215

Arlington Heights, III. 60006

## Kirksaeter

Niederrheinstr. 193
4000 Düsseldorf 30
Germany
KLH
11131 Dora St
Sun Valley, Cal. 91352

## Klimo

See Audio Advancements

## Klipsch

P.O. Box 688

Hope, Ark. 71801
Klyne Audio Arts
20604 Grand Mound S.W. Centralia Wash. 98531
FAX: (206) 273-6991

## Knöll

1547 Gulf Rd., Suite 1206
Point Roberts, Wash. 98281
FAX (604) 272-5595

## Kort Audio

3646 Lyndale Ave North Minneapolis, Minn. 55412

## Koss

4129 North Port Washington
Milwaukee, Wisc. 53212
FAX: (414) 964-8615

## Krell

35 Higgins Dr
Milford, Conn. 06460

## KSS Audio Engineering

2973 Calle Gaucho
San Clemente, Cal. 92672

## Kuzma

See VPI

## L

Lancer Electronics
12340 McCann Dr
Santa Fe Springs, Cal. 90670
FAX: (310) 941-7975
LAT International
317 Provincetown Rd
Dept. A
Cherry Hill, N.J. 08034

## Lazarus Electronics

8130 Coldwater Canyon
North Hollywood, Cal. 91605
FAX: (818) 982-9308
Legacy
See Reel to Real Designs

## Legend Audio

5775 Lỉdero Canyon Rd.
Westlake Village, Cal 91362
FAX: (818) 879-5717

## Lenbrook

633 Granite Ct
Pickering, Ont.
Canada L1W 3K1
P. E. Léon

See Dimexs

Mark Levinson
See Madrigal

## Lexicon

100 Beaver St.
Waltham, Mass. 02154

## LFD Audio

See Ulltra Systems

## Linaeum

1238 N.W. Glisan
Suite 404
Portland, Ore 97209
FAX: (503) 222-5196

## Linn

See Audiophile Systems

## Lirpa Labs

Main \& Elm Sts
New York, N.Y. 10101
FAX: (900) 410-8463

## Loran

10-48 Clark St.
Warren, Pa. 16365
FAX: (814) 726-1117
David Lucas, Inc.
924 Hulton Rd
Oakmont, Pa. 15139

## Lyra

See Immedia

## M

Mach 1 Acoustics
R.R. 2, Box 334-A

Wilton, N.H. 03086
FAX: (603) 654-9826

## Madison Fielding

200 William St
Port Chester, N.Y. 10573

## Madisound

P.O. Box 44283

Madison Wisc. 53744
FAX: (608) 831-3771

## Madrigal Audio

Laboratories
P.O. Box 781

Middletown, Conn. 06457
FAX: (203) 346-1540

## Magnavox

See Philips

## Magnepan

1645 Ninth St
White Bear Lake, Minn
55110

## Magnum Dynatab

8 Strathearn Ave., Unit 9
Brampton, Ont.
Canada L6T 4L9
Magnum Dynalab U.S.A.
1237 East Main St
Rochester, N.Y. 14609
FAX: (716) 482-8859

## Marantz

1150 Feehanville Dr.
Mt. Prospect, III. 60056
FAX: (708) 299-4005

## Marchand Electronics

1334 Robin Hood Lane
Webster, N.Y. 14580
FAX: (716) 265-1614

## Mares Designs

137 E Fremont, \#5265
Sunnyvale, Cal. 94087
FAX: (408) 737-7630
John Marovskis
Audio Systems
2889 Roebling Ave
Bronx, N. Y. 10461

## Marquis Electronics

901 Charity St.
Abbeville, La. 70510

## Martin-Logan

P.O. Box 707

Lawrence, Kans. 66044

## Mastercraft Audio

Box 2661
Huntington Station, N. Y.
11746

## Maston Audio

88 Howard, \#815
San Francisco, Cal. 94105
FAX: (408) 997-1558

## Maxell

22-08 Route 208 South
Fair Lawn, N.J. 07410
FAX: (201) 796-8790

May Audio Marketing
P.O. Box 1048

Champlain, N.Y. 12919
FAX: (518) 298-5314
MB Quart Electronics 25 Walpole Park South Walpole, Mass. 02081 FAX: (508) 668-8979

## McCormack Audio

542 North Hwy. 101
Leucadia, Cal. 92024

## McIntosh Laboratory

2 Chambers St.
Binghamton, N.Y. 13903
FAX: (607) 724-0549

## McNeill

417 Temple Rd
Monaca, Pa. 15061

## Melos Audio

452 Lincoln Bivd. Middlesex, N.J. 08846
FAX: (908) 302-0507

## Memorex

Memtek Products
P.O. Box 901021

Fort Worth, Tex. 76101
FAX: (817) 878-6743

## Meret Audio

10920 Indian Trail, \#301
Dallas, Tex. 75229
FAX: (214) 243-0332

## Meridian

3800 Camp Creek Pkwy. Bldg. 2400, Suite 112 Atlanta, Ga. 30331 FAX: (404) 346-7111

## Merlin Music Systems

4705 South Main St.
Hemlock, N.Y. 14466
FAX: (716) 367-2685

## Merrill Audio

2125 Central Ave Memphis, Tenn 38104

## Meta Research

See Goldmund

## Metaxas Audio Systems

230 Rae St.
North Fitzroy
Melbourne, Victoria 3068
Australia
FAX: (011) 613 486-2252
or: (011) $613482-2129$

## MFA

5530 Moraga Ave.
Oakland, Cal. 94611
FAX: (510) 547-4465

## Michael Green Designs

P.O. Box 57

Sugarcreek, Ohio 44681
FAX: (216) 343-8700

## J. A. Michell

See Artech Electronics

## Micromega

See Golden String

Milbert Amplifiers
P.O. Box 1027

Germantown, Md. 20874

## Mirage

See AP:
Mission Electronics
400 Matheson Blva. East Unit 31
Mississauga, Ont.
Canada L4Z 1R5
FAX: (416) 507-0797
MIT
Music Interface Technologies
3037 Grass Valley Hwy
Auburn, Cal. 95603
Mitsubishi Electronics
5757 Plaza Dr
Cypress, Cal. 90630

## M \& K Sound

10391 Jefferson Blvd
Culver City, Cal. 90232
FAX: (310) 202-8782

## Modern Audio

Consultants
112 Swanhill Ct
Baltimore, Md. 21208

## The Mod Squad

See McCormack

## Monarchy Audio

380 Switt Ave., Unit 21
S. San Francisco, Cal. 94080

FAX: (415) 588-0335

## Mondial

2 Elm St
Ardsley, N.Y. 10502

## Monitor Audio

P.O. Box 1355

Buffalo, N.Y. 14205
FAX: (416) 428-0004

## Monrio

See RB Electronics
Monster Cable
274 Wattis Way
S. San Francisco, Cal. 94080

Bruce Moore Audio Design See RB Electronics

## Morch

See Audio Advancements

Morel Acoustics
414 Harvard St Brookline, Mass. 02146
FAX: (617) 277-2415

## Morrison Audio

334 King St. East
Unit 407
Toronto, Ont.
Canada M5A 1K8

## Motif

See conrad-johnson

## MSB Technology

P.O. Box 141

Moss Beach, Cal. 94038 FAX: (415) 747-0405

## MTX

MTX Soundcraftsmen
555 West Lamm Rd.
Freeport, III. 61032
FAX: (815) 233-2124

## Museatex

ADS Technologies
One Progress Way
Wilmington, Mass. 01887
Muse Electronics
P.O. Box 2198

Garden Grove, Cal. 92642
FAX: (714) 554-5643
Musical Concepts
1832 Borman Ct., Suite 1
St. Louis, Mo. 63146

## Musical Design

See Musical Concepts

## Musical Surroundings

5856 College Ave., Suite 146
Oakland, Cal. 94618
FAX: (510) 420-0392
Music for Others
12438 Larkwood Dr
St. Louis, Mo. 63146
FAX: (314) 434-9925

## Music Hall

108 Station Rd.
Great Neck, N.Y. 11023
FAX: (516) 773-3891

## Music Labs

See E. A. Zarth

## Music Reference

P.O. Box 40807

Santa Barbara, Cal. 93140
FAX (805) 962-8335

## Music \& Sound Imports

2381 Philmont Ave.
Suite 117
Huntingdon Valley, Pa.
19006
FAX: (215) 938-1974

## J \& J Myers

22 Parsons Dr
Swampscott, Mass. 01907
FAX: (617) 581-2164

## $N$

## NAD

See Lenbrook
Nady Systems
6701 Bay St
Emeryville, Cal. 94608
FAX: (510) 652-5075

## Naim Audio

1748 North Sedgwick St.
Chicago, III. 60614

## Nakamichi

19701 South Vermont Ave. Torrance, Cal. 90502

## N.E.A.R.

New England
Audio Resource
679 Lisbon Rd.
Lisbon Falls, Maine 04252

## NEI

2373 N.W. 185th, \#286
Hillsboro, Ore. 97124
FAX: (503) 289-8361

## Nelson-Reed

15810 Blossom Hill Rd.
Los Gatos, Cal. 95032
FAX: (408) 358-3113

## Nestorovic Laboratories

8307 N.E. 110th PI.
Kirkland, Wash. 980;34

Newform Research
203 Eggert Rd.
Buffalo, N. Y. 14215
FAX: (716) 871-1110

## NHT

Now Hear This
535 Getty Ct , Bldg. A
Benicia, Cal. 94510
FAX: (707) 747-0169
Niles Audio
P.O. Box 160818

Miami, Fla. 33116
FAX: (305) 238-0185

## Nitty Gritty

4650 Arrow Hwy., \#F4
Montclair, Cal. 91763

## Nobis Technologies

N114 W18605 Clinton Dr
Germantown, Wisc. 53022
FAX: (414) 253-9033
Norman Laboratories
1905 Atchison Dr.
Norman, Okla. 73069
Now Hear This
See NHT

## NPR Audio

Route 109, P.O. Box 440
Melvin Village, N.H. D3850
FAX: (603) 544-890 $\dagger$
NRG Control
P.O. Box 389

Walled Lake, Mich. 48390

## NSM

See EuroSōn

## NSM Loudspeakers

P.O. Box 326

Garden City, N.Y. 11530
FAX: (516) 538-0933

## Numark

East Bay Office Pk., \#109
1445 Wampanoag Tr.
East Providence, R.I 02915
FAX: (401) 437-9386

## 0

OCM Technology
See Magnum Dynalab

## Octave Research

183-08 Camden Ave St. Albans, N.Y. 11412

## OEM Systems

740 Freeport, Suite 106
Sparks, Nev 89431
FAX: (702) 355-0646
, $355-0646$

Ohm Acoustics
241 Taaffe PI.
Brooklyn, N.Y. 11205
FAX: (718) 857-2472

## Omni Sound

19020 Preston Rd
Dallas, Tex. 75252
FAX: (214) 964-0113
OmniSurround
60 East Ida St.
Antioch, III. 60002

## Onix Electronics

See RCS Audio Intl

## Onkyo

200 Williams Dr
Ramsey, N.J. 07446
Optimus
See Radio Shack
Oracle Audio
C.P.P.O. Box 394

Edmundston, N.B
Canada E3V 3L1
FAX: (506) 735-5810
Oracle Audio U.S.A.
1237 Nielsen Dr
Clarkston, Ga. 30021

## Orca

1531 Lookout Dr
Agoura, Cal. 91301

## Ortofon

65 East Bethpage Rd.
Plainview, N.Y. 11803
Ötvös Industries
R.R. 4

Brighton, Ont
Canada KOK 1HO
OWI
1160 Mahalo PI
Compton, Cal. 90220
Owl
See Audio "78"

## Oxford

See Knöll

## P

PAC
Perfectionist
Audio Components
32 Church St
Malverne, N.Y. 11565
FAX: (516) 887-6009
Pacific Sound \& Signal
See Knöll
Packburn Electronics
P.O. Box 335

DeWitt, N.Y. 13214

## Panasonic

One Panasonic Way
Secaucus, N.J. 07094

## Paradigm

See AudioStream
(2)

## Paradox

16350 Enramada Rd
Victorville, Cal. 92392
FAX: (619) 245-8435

## Paragon Acoustics

30 93rd St. West
Suite 201-A
Bloomington, Minn. 55420

## Parasound

950 Battery St.
San Francisco, Cal. 94111

## Pass Laboratories

21555 Limestone Way
Foresthill, Cal. 95631
FAX: (916) 367-2193

## Patterson Audio Systems

P.O. Box 87261

Canton, Mich. 48187

## PBN Speakers

16619 Wikiup Rd Ramona, Cal. 92065 FAX: (619) 789-3784

## Pegasus Audio

See The Speaker Factory
Persona Technologies
See Monster Cable

## Peterson-Klaus

See Sound Values
Phase Technology
6400 Youngerman Cir. Jacksonville, Fla. 32244

## Philips

One Philips Dr.
Knoxville, Tenn. 37914

## Phototronics

P.O. Box 977

Manotick, Ont.
Canada K4M 1A8
FAX: (613) 692-2605

## PhyZics

2680 Post Oak Ct. N.E.
Marietta, Ga. 30062

## Pickering

101 Sunnyside Blvd.
Plainview, N.Y. 11803
FAX: (516) 349-0230

## Pink Triangle

See Pro Audio Lid

## Pinnacle Loudspeakers

255 Executive Dr.
Suite 310
Plainview, N.Y. 11803

## Pioneer

P.O. Box 1540

Long Beach, Cal. 90801

## Placete Engineering

7345 Cascade
Boise, Idaho 83704
FAX: (208) 322-1760

## Planar Audio Marketing

6218 Saltmarsh Ct.
Mississauga, Ont.
Canada L5N 5X7
FAX: (416) 824-9214

## Platinum Electronics

1095 Spice Island, \#100
Sparks, Nev. 89431
PointSource Audio
P.O. Box 788

Whiting, Ind. 46394

## Polk Audio

5601 Metro Dr
Baltimore, Md. 21215
FAX: (410) 764-5266

## POSH Speaker Systems

7865 N.E. Day Rd. West
Bldg. C
Bainbridge Island, Wash 98110
FAX: (206) 842-0494

## Prelude

25 Esna Park Dr
Markham, Ont
Canada L3R 1C9

## Presence Audio

See First Sound

## Pres Speakers

59 North St.
Hatfield, Mass 01038

## ProAc

See Modern Audio
Consultants
Pro Audio Ltd.
111 South Dr.
Barrington, III. 60010
FAX: (708) 526-1669

## Proceed

See Madrigal
Professional Technologies
Box 282-A, R.D. 1
Rome, N.Y. 13440
Prophile
See Source Technologies

## Proton

16826 Edwards Rd
Cerritos, Cal. 90701

## PS Audio

P.O. Box 1119

Grover Beach, Cal 93483
FAX: (805) 481-6892

## PSB Speakers

633 Granite Ct.
Pickering, Ont.
Canada L1W 3K1

## PSE

Professional Systems
Engineering
9755 Hamilton Rad
Eden Prairie, Minn. 55344

## PTS

Precision Transducer
Systems
461 Dupont St.
Ontario, Cal. 91761
FAX: (909) 460-0222
Purest Sound Systems
1217 East 60th St.
Cleveland, Ohio 44103
FAX: (216) 881-0253

## QED

See May Audio Marketing
QSC
1675 MacArthur Blva
Costa Mesa, Cal. 92626

## Quad

111 South Dr
Barrington, III. 60010
FAX: (708) 526-1669

## Quadrature Audio

## Technology

3310 Monier Cir., Suite 8
Rancho Cordova, Cal. 95670
FAX: (916) 852-9715

## Quanta Technologies

See The Speaker Factory

## Quasar

1707 North Randall Rd
Elgin, III. 60123

## Quest

120 Woodridge PI.
Leonia, N.J. 07605

## Questor Loudspeakers

See Cascade

## Quickline Products

518 Palo Alto Dr
Vancouver, Wash. 98661

## Quicksilver Audio

5636 Riggins Ct., \#15
Reno, Nev. 89502
FAX: (702) 825-1552
Quintessence Acoustics
1631 La Mesa Ave
Spring Valley, Cal. 91977
FAX: (619) 698-3827

## R

Radio Shack
700 One Tandy Center
Fort Worth, Tex. 76102

## Rane

10802 47th Ave. West
Mukilteo, Wash. 98275
FAX: (206) 347-7757

## RB Electronics

4046 Ashbrook Cir
San Jose, Cal. 95124
FAX: (408) 377-4911
RBH Sound
4042 Pacific Ave.
Riverdale, Utah 84405

## RCA

See Thomson
RCS Audio International
3881 Timber Lane
Verona, Wisc. 53593
FAX: (608) 829-2686
RDL Acoustics
26 Pearl St., \#15
Bellingham, Mass. 02019 FAX: (800) 227-9047

## Realistic

See Radio Shack

## Recoton

2950 Lake Emma Rd. Lake Mary, Fla. 32746

## Reel to Real Designs

3021 Sangamon Ave
Springfield, III. 62702
FAX: (217) 744-7269

## Rega Research

See Music for Others

## Renaissance Acoustics

1105 N. Main St., \#32-F
Gainesville, Fla. 32601

## Resolution Audio

124 Mt . Auburn, \#200-N
Cambridge, Mass 02138

## Revolver

See Music Hall

## RMS Audio

3716 Performance Rd.
Charlotte, N.C. 28266
Roberts Architectural Audio
27075 Cabot Rd., \#107
Laguna Hills, Cal. 92653

## Rockport Technologies

R.F.D. 1, Box 1113-A

West Rockport, Maine 04865
FAX: (207) 596-0928
Rock Solid Sounds
See B \& W Loudspeakers

## Rogers

See Audio Influx

## Rohrer Acoustic Design

P.O. Box 884411

San Francisco, Cal. 94188

## Roksan

See May Audio Marketing

## Rossman Audio

597 West Hillside Ave. State College, Pa. 16803

## Rotel

P.O. Box 8

North Reading, Mass. 01864
FAX: (508) 664-4109

## Jeff Rowland Design Group

P.O. Box 7231

Colorado Springs, Colo.
80933
FAX: (719) 633-4158

## Royd

See Planar Audio Marketing

## RPM

See Immedia

## Ruark

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## Rush Sound

1284 South Lyon St
Santa Ana, Cal. 92705
FAX: (714) 543-2869

## Russound

5 Forbes Rd.
Newmarket, N.H. 03857
FAX: (603) 659-5388

Ryan Acoustics
3870 La Sierra, \#200
Riverside, Cal. 92505
FAX: (909) 276-3362

## S

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Stanford Advanced
Acoustic Technology
470 Stanford Ave.
Danville, Ky. 40422

## Sansui

1290 Wall St. West
Lyndhurst, N.J. 07071

## Sanyo

21350 Lassen St.
Chatsworth, Cal. 91311
Sasaki
See Quest
Scan American Audio Co.
P.O. Box 145

Southport, Conn. 06490
FAX: (203) 374-8280

## Scientific Fidelity

6301 Riggs PI.
Los Angeles, Cal. 90045
FAX: (310) 641-5488

## Sennet Concepts

P.O. Box 1630

Milford, Pa. 18337

## Sennheiser

6 Vista Dr.
Old Lyme, Conn. 06371
FAX: (203) 434-1759

## Sentec

See Phototronics

## R. Sequerra Associates

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Stamford, Conn. 06902
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## Sescom

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Henderson, Nev. 89015
FAX: (702) 565-4828
Shahinian Acoustics
33A \& B Cedarhurst Ave
Medford, N. Y. 11763
FAX: (516) 736-0381

## Sharp Electronics

Sharp Plaza
Mahwah, N.J. 07430

## Sherwood

14830 Alondra Blvd.
La Mirada, Cal. 90638

## Shure

222 Hartrey Ave.
Evanston, III. 60202
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## Siefert Research

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| 4701 Hudson Dr | Sony | Div., Components Specialties | 225 Oakes S | 5330 Derry Ave., Suite R |
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