

LEARNING CURVE

FOR AUDIO & VIDEO SYSTEMS

INFORMATION FOR SOUND & VIDEO CONTRACTORS & CONSULTANTS FROM STARIN AND THE REP FIRM

SUCCESS STORY

Profiting From Line Arrays

by Don Kreski, Pro AV Magazine

Something is happening in audio rental and installation: Line arrays are becoming a hot item. "It's the most in-demand loudspeaker type we have," says Monte Wise, special projects manager for concert sound at Telex/Electro-Voice. "It's amazing how many people want them."

As more and more video and audio products become commodities, this technology seems to resist the trend. That's great news for those willing to learn to design and install line array systems because when the contractor finds the right application, he may also find himself in a territory where there's little or no competition.

It may be helpful to review what an array is. First, an array acts as an array only if the drivers can be stacked, center-to-center, closer than half the wavelength of the sounds they produce, and if the entire stack is twice the given wavelength. When both are true, the sound dispersion pattern shifts from a sphere to something like a cylinder, and the sound level falls off much more slowly with distance. The designer can control placement of the sound—particularly low frequencies—much more accurately than with conventional speakers. With recent advances we can have line array performance up to 8 to 10kHz, and fine-tune the array's dispersion pattern. The result is a line array designed for smaller venues, capable of producing very consistent, high-quality sound.

What does it take to install line arrays properly? Manufacturers and trade associations offer good training as well as CAD modeling programs to help designers understand what's needed in a given venue. Still, this is an area where less-than-serious integrators or Internet discounters won't be able to succeed.

Wise sees the demand continuing to grow. "I'm just trying to keep up with the line array demonstrations, installations, and training."



Fourth Quarter '04

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A Contractor's Guide to Projector and Panel Applications

by Bill Mullin, CTS

Computer and video display continues to offer more and more opportunities for new business, whether you call on business and industry, education or house of worship customers. So, let's take a look at the basic considerations for applying display technology.

The ideal screen size

Flat panel monitors are offering better and better alternatives to projectors, particularly as prices come down. Yet the real determination of how appropriate the panel would be is the ratio of screen size to audience size.

There are some rules of thumb:

- The screen height should be 1/6 of the distance from the screen to the furthest viewer.
- The bottom of the screen should be at least 48" above the floor or within line-of-sight of the furthest viewer.
- The front row should be 2 times the screen width.

From these few rules, you can quickly see that a 50" plasma with a screen height of 24.5" would satisfy only those viewers no further than 147" away—about 12 feet. For any larger application, projection remains the best means of serving an audience with legible text and clearly seen graphics.

Positioning a projector and screen

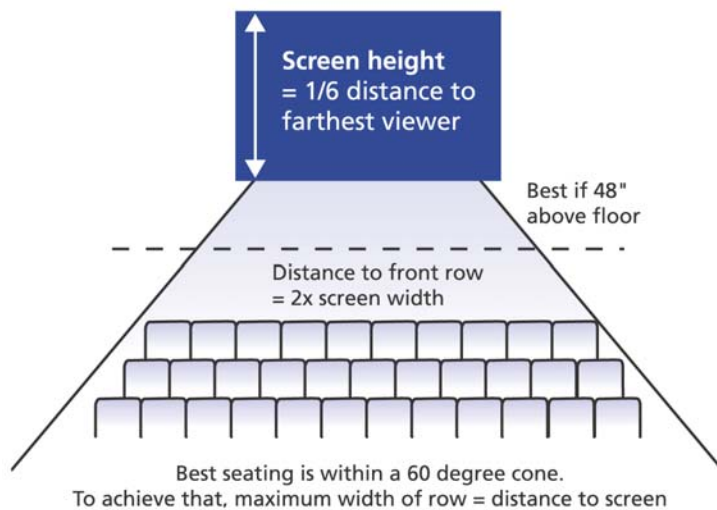
How should you position your projector and screen in a sizable room?

Let's say you have the last row of seating 30 feet away. The screen height should be 1/6 of that distance, or 5 feet (8.3' or 100" diagonal). Use a throw distance-to-screen size chart to determine where the standard lens will allow you to position the projector. We supply one in the Starin BenQ price guide. Since most projectors have a zoom lens, you have a range of distances for throwing a given image size. A BenQ PB7220, for example, has a short throw lens, so your positioning will be near the screen, in our example anywhere from 131" to 171" from the screen to the lens.

Now if for some reason you can't place your projector at this distance, you may use a replacement lens or a lens adapter. To select a different lens, consider the ratio of the focal length of the lens along with the screen width and the distance from the projector to the screen. The formula is distance/width. For example, if you had a 10' wide screen and a distance of 10', you'd need a lens with a 1:1 ratio. If your distance changed to 20', you would need a lens with a 2:1 ratio.

Due to the different sizes of the LCD panel used in each projector, the actual focal length of the required lens varies. An exact formula uses the panel size:

$$\text{Lens focal length} = \frac{\text{throw distance} \times \text{LCD panel diagonal}}{\text{screen diagonal}}$$



The new BenQ PB9200, ideal for HOW and other large venue installations, provides native XGA (UXGA compressed), 800:1 contrast, 4500 ANSI lumens, inter-changeable lenses, integrated RJ-45 input for network control, horizontal and vertical keystone correction, lens shift & progressive scan.

A New Identity For Starin Reps

"The Rep Firm" created within Starin organization



A new division—The Rep Firm—has been organized within Starin Marketing, Inc. to handle field sales and marketing of lines that franchise and deliver direct from their factories.

"With the growth of the distributing business, it has become more and more important for our manufacturers' rep side to have its own identity," says Jim Starin, president and owner. "The change reflects an increasing commitment to the rep side of the business."

Jim founded the company in 1988 to provide customer service, sales and technical support to sound contractors, music stores and AV dealers. We now have six offices across ten states handling audio, video, projection, control, security and teleconferencing products. The Starin name continues to apply to the overall corporation & the distribution division.

In the case of the new BenQ PB9200, for example, you would use .99" as your panel diagonal.

Now you have the place to install the projector, directly on axis to the screen. What happens if there is some infrastructure, like duct work, preventing you from mounting there? You smart guys may say,

continued on page 5

Solution Spotlight

V ZX-5 Loudspeaker



Twenty years after EV introduced the 100S (aka the Entertainer speaker), a new generation of composite loudspeaker is here with the EV Zx5. It's a 15-in, 2-way featuring a 500 W (2400 W peak) woofer, a 2-in ND2 compression driver, with integrated rigging. Two coverage patterns available: 90° x 50° and 60° x 60° for tighter, longer throw in reverberant spaces. Also with floor monitor feet it can adjust to 45 or 55 degree angles.

Telex SAFE-1000

Encrypted Wireless Mic



One problem with wireless mics is that they are easy to intercept with scanners and other receivers. This top-selling digitally encrypted system

solves the problem. It's ideal for government installations as well as boardrooms. Setup is simple and, with over 950 possible channels, the system is extremely versatile.

Telex SoundMate

Re-engineered, Re-packaged



Telex has upgraded its popular hearing impaired system with digital receivers and a new transmitter that's

sleeker looking and easier to use (with a larger display and all switching from front panel). Greater than 77db of signal to noise, using Telex's new Enhanced Dynamic Range (E.D.R.)circuitry!

ADA Section III-7.5180 says: "Fixed seating areas that accommodate 50 or more people OR have amplification systems MUST have a permanently installed ALS."

PRO ANNOUNCE

For paging, BGM, messaging and more



Granite City Food and Brewery, of Maple Grove, MN had record-breaking

first-week sales figures for the eight-location chain. Integral to their success are the intercom, paging, and distributed sound systems installed in their restaurants, designed and installed by Aufderworld of Bloomington, MN. A Dynacord ProAnnounce system is running four zones of audio for playback and paging – dining, kitchen, bar, and patio – with a direct intercom from the bar to the kitchen.

Let us help you design these kinds of systems for your customers – contact Starin for design assistance.

Telex PolarChoice Satellite

Forget about cutting holes in tables or running unsightly cables. This free-standing gooseneck microphone works with any EV/ Telex wireless transmitter! For table or podium use, the Satellite can be programmed to operate as either latching on/off or momentary push-to-mute. And if the wire is not a problem, it's also now available wired with a 10 ft XLR cable and logic interface for use with an auto-mixer!



JVC DR-MV1S VCR-DVD



Record two independent programs or record one and play one at the same time. Or check out the DR-MH30S with a 160GB hard drive and DVDR. Get your JVC consumer equipment from Starin: TVs, DVDs, VCRs, receivers, cassette decks, LCD and plasma, etc.

Catch the Express... Symetrics SymNet™ Express



The new Symnet Express is designed for applications where a single, stand alone unit is sufficient for the system DSP. The Express is also available with the new 8X8 Cobra chip if expandability is required. Windows-based software allows creation and adjustment of audio processing from a desktop environment and real-time control once the hardware has been commissioned onsite. Here's just what you need to set up one or more DSPs on a customer's site and allow remote access over a computer network. Contact your Rep Firm representative for details.

ETA PS-220 Power Conditioner

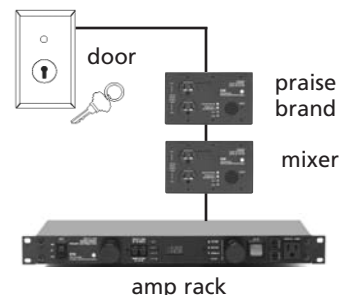


Provide an integrated, linked power conditioning and turn -on

system with the PS-222, featuring 2 outlets 20 amp; spike and surge protection on all 3 legs, in a 3 gang box size. It links to the PD11-SP or PD420-VRS rack units and additional PS220s. A KL3R Key-lock Remote Wall Plate (or rack mount version- KL3RR) allow remote turn on for the linked group of locations.

ETA sequencing solutions

4 up/down stages; 1,5,10, 30 sec. intervals
PD11-SP: 10 back & 1 front outlets; 20 amp
PD420: 4-20 amp circuits, each with 4 outlets
PD 11-SS, PD11-SSP & PD11LVSP: stand-alone sequencers that do not link.



EV House of Worship Catalog

The new HOW catalog defines the difference between mere clarity and pure inspiration. It's your religious customer's guide to ElectroVoice products and a great source for ideas for their next sound system.



For a copy, e-mail your request to: literature@starin.biz

Plasma's a speaker, too



Joe Stopka demonstrates the highly compact EV Plasma headliner concert-club-theatre speakers. Plasma features ultra-light Class H amplification.

Starin now supplies Altinex

Starin can now be your source for Altinex signal management products. Call us whenever you need help with an interface, distribution amp, switcher, converter, cable or special application product.



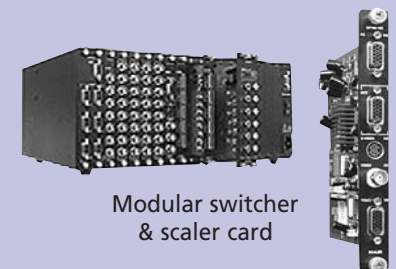
Aesthetic Altinex table interface



Wall interface



Distribution amp



Modular switcher & scaler card

Unique Sound System at Millennium Park

by Jim Long



The Jay Pritzker Pavilion at Millennium Park is not your usual outdoor concert venue. It features a distributed sound system with ElectroVoice speakers flown out over 4,000 installed seats and lawn seating for 7,000 more.

Jonathan Laney of the Talaske Group of Oak Park, Illinois had two major needs in designing the sound system. He needed to faithfully reproduce a live symphony orchestra and related voices without coloration, but he also had to have enough oomph to handle, if not full-bore rock, dynamic contemporary acts such as Lyle Lovett. Line arrays were out of the question because of vertical height constraints presented by architect Frank Gehry.

The sound-reinforcement system he selected consists mostly of custom, weather resistant versions of various EV X-Array systems. Their large-format mid-bass horns maintain directivity control to 800 Hz and below, helpful in keeping sound on the absorptive audience and away from reflective surfaces. There are also 10 totally custom CS91 stage-lip speakers based loosely on the EV FRi-2082. The systems number 113 in all.

Reinforcement for the lawn is provided by fifty Xi-1123A/106F full-range variants and six Xi-1191F

sub variants, each mounted on an overhead trellis built of curving steel pipes that Gehry suspended above the lawn.

The quality of the sound matches that of the structure. The Chicago Tribune calls the Pavilion "a brilliant, provocative work" that is "in many ways exceeding the daunting challenge of building in the place [Gehry] himself calls 'the greatest city in the world as far as contemporary architecture.'"



Solution Spotlight continued

Alesis...alive and alert

After going through an ownership change, Alesis has really been revitalized.

ZoneMix 6

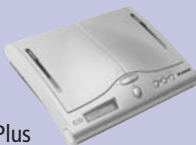


Has 6 line, 1 phono, 3 mic inputs (on front and back); Mic 1 equipped with

auto ducking, sensitivity adjustment, gain, and EQ controls; 2 zone outputs with gain, pan, EQ, and stereo/mono adjustment.

CD TWIN

CD recorder has USB i/o with software to download from your computer. Plus it is an off line duplicator at 52X dup.



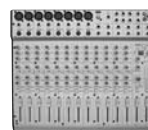
GigaMix 4 CD

4 mic, 2 stereo line, 200 watt portable mixer with CD. Great for rentals or the football, soccer or baseball team needing all-in-one system on the field. Available in 8, 6 and 4-in versions w/o CD.



MultiMix 16USB

Compact 16 chan. 4-buss mixer; now with USB out; also in 12, 8 & 6 chan versions.



ADAT HD24



A 24 track, 24 bit 96 kHz, removable hard disk recorder.

Vocal Zapper

Has 16 unique algorithms that allow clean removal of vocals from various types of mixes.



Alesis product divisions:

Recorders / Mixers / Amps
Synths / Monitors Signal
Processing / Guitar

A Contractor's Guide to Projector Applications - continued

"Hey, I could create a uni-strut cradle around that." But if you want to keep hardware to a minimum, you could use a projector that has lens shift, which gives the ability to move the lens itself left and right or up and down within the projector housing. Lens shift allows you to position the projector off axis.

Digital keystone correction is another feature that allows you to electronically compensate for the distortion of the image as it is thrown from an angle, by squaring up the resulting trapezoidal image.

Projector or panel resolution

A basic consideration to review in selecting your projector is the resolution. That's simply the horizontal and vertical pixel count. More pixels provide a more defined image. XGA is in common usage for business purposes, but many users in education and other areas select SVGA, because it provides, at a lower cost, sufficient image quality for Powerpoint and other programs that do not require fine detail.

Most projectors can handle a number of resolution inputs by electronically re-sizing or scaling the image to the native resolution of the panel or chip.

If the projector will not view the output of the PC, then you may have to go into the computer's control panel to change the resolution (see the display properties in the settings tab). It may also be that the bandwidth is too high. Higher bandwidth (expressed in Mhz) provides a better signal, but it's possible to be so high as to be out of range of the projector.

Inputs, outputs and interfaces

How many inputs do you need on a given projector, or do you need a loop-through output? Some projector models have two VGA inputs (in this case VGA refers to a 15 pin connector for PC). If you have two computers to use in the room these will be

handy. However, also consider if you would be better served to switch the PCs at a stand-alone switcher with easier access and control than the projector. Starin has these available from Altinex and Sony. In some applications a single PC input is used and all video sources are scaled up to the native resolution of the projectors.

Other times, you may want to use a monitor output to loop the projector's signal to a podium confidence monitor or a second projector when there are two flanking projectors in an auditorium showing the same source. These applications can also be served by a distribution amp.

Why put dual projectors in a wide audience area? It is best to keep the audience within a 60 degree "viewing cone" to avoid off-axis distortion. If your room is wider, you'll need a second screen.

The longest length of VGA cable running from a PC to a projector should be no more than 15 feet, or you'll run the risk of signal degradation. Interfaces are designed to enhance the computer video signals with level and peaking adjustments that compensate for the resulting loss of brightness and sharpness.



Projector mounts

The new OmniMount PBM universal projector mounts can be your ideal shop standard. That's because you only need to inventory two sizes to readily install any number of projectors. Each mount includes an adjustable 12-18" pole. Attach the projector to the grill plate; it easily slots into the hanging plate. Integral cable management and tilt & pitch leveling adjustments give your install proper fit and finish. For security, have a lock inserted. Best of all, these are the most affordable mounts in the industry.

OmniMount PMD-1

9x11" footprint for projectors up to 30 lbs

OmniMount PMD-2

12x11" footprint for projectors up to 40 lbs

Video Signals

Composite video: All signal information mixed on two conductors usually RCA connector

Y/C (S-Video): Signal separated luma ("Y") or black and white brightness and chroma ("C") color, usually on a multi-pin, but could also be BNC

Component video: Red, green and blue signals carried on separate lines, often on BNC or RCA; Sync signal can be superimposed on color or broken out into horizontal and vertical signals, carried on added lines.



The 8000 series from BenQ (shown at left) is most suitable for video with component signal inputs (RGB).

Navitar Screenstar Conversion Lenses

Available from Starin, increase your throw distance up to 20% or 50% with a telephoto lens or likewise shorten throw with wide angle versions. MSRP \$1290, adds profit to the projector sale.



Acoustical Treatments Made Simple



"Dealers are now realizing the profits in acoustic treatment for the very venues they've installed sound, video, and lighting systems," says Neal Weber, team leader of the The Rep Firm and Indiana/Kentucky territory account manager.

Personalized Room Analysis Form. You can find the form on the back of each Auralex catalog as well as on their website: www.auralexelite.com/pcf/

Once this form is completed and faxed to 317-842-2760, Gavin will analyze the room and determine the appropriate materials to tame the acoustical issues your client is facing. This service is free and typically is completed within 2-3 business days (3-5 business days for large rooms).

Auralex Acoustics, located in Indianapolis, Indiana has made the daunting and sometimes mystifying task of designing acoustical treatments very simple: they do it for you. Gavin Haverstick is one of the staff acoustical engineers at Auralex who will walk you through evaluating, specifying, and installing acoustics.

If an on-site analysis involving testing and measurement is required, Auralex can assist with this as well. Feel free to contact Gavin at 317-842-2600 (x229) to discuss any potential projects. Call him, too, if you have questions about Auralex products and services.



The best way to begin the process is to fill out (or have your client fill out) a

New Acoustical Standards Critical to Learning

A recent survey indicates that three-quarters of American teachers give the acoustics in their classrooms a failing grade. The problem most often cited is that the room is too noisy and it takes a long time for sound to decay within the room.

and guidelines of this standard are keyed to the acoustical qualities needed to achieve a high degree of speech intelligibility in learning spaces," says Paul Schomer, standards director for the Acoustical Society of America (ASA). ASA's "Classroom Acoustics" can help you apply the need for good acoustics to any space where intelligibility is important: be it a school, conference room or house of worship. Visit asa.aip.org (and click "publications") for a copy.

Intelligibility is critical to learning. Studies by Maxwell and Evans (1997) have shown that students in schools with high background noise levels tested lower than those in quieter schools. For this reason, the American National Standards Institute (ANSI) has approved a new set of acoustical specifications for schools. "The criteria, requirements,



Neal Weber assists a contractor on a project.

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