

# Hints on Handling AV

By Ken Sien, CMP

If you're like most meeting managers, you probably don't use lavalier microphones, Xenon projectors, or multiple computers in your everyday life. You may, in fact, still need help programming your VCR. So it's only natural that you may be intimidated by coordinating the audio-visual component of a convention. But there's really no need to be. All you need is a knowledgeable, dependable AV company and a basic understanding of some of the tricks of the trade. The following tips, culled from years of on-site experience, should help you feel more comfortable.

## Types of Microphones

There are several types of microphones used by speakers and entertainers. The most common choices are:

*Lectern/podium mic* — As the name suggests, this type of microphone is used by speakers who present from a lectern or podium. The mic is usually attached to a gooseneck mic holder mounted to the lectern or podium. Unless the in-house AV company is supplying the mic, there may be a charge for the gooseneck. These mics have ball-type heads and are omni-directional, meaning they accept sound from all parts of the top of the mic.

*Lavalier mic* — A "lav" mic usually has a flat top and is worn on the lapel of a speaker, which gives him or her the freedom to move around the room rather than remain at the lectern. It is a uni-directional mic, meaning that sound is only recorded from the very top of the mic.

*Table mic* — This is an omni-directional microphone placed on a table stand and used for speakers who speak from a table.

*Standing/aisle mic* — Typically used for questions or comments from the audience, this omni-directional microphone is placed on a tall mic stand and usually positioned in one of the aisles of the meeting room so that attendees can walk up to it. It can also be used for entertainment, such as a singer or comedian.

## Wired vs. Wireless Microphones

The biggest advantage of using a wireless microphone is the convenience and freedom of being able to move around the room without worrying about a cord. (Just be sure the mic has fresh batteries.) The disadvantage, depending on your AV budget, is the cost. The average cost of a wireless microphone ranges from \$75 to \$125 versus \$25 to \$30 for a hardwired microphone. In addition, you'll most likely need to order an audio mixer (a device that enables you to control the sound on the microphones you use) if the wireless mic doesn't feature volume adjustment.

If you're holding multiple concurrent sessions, ordering wireless mics for each room can be a very expensive proposition. For a general session, however, it makes sense to let speakers use the microphone they feel most comfortable with. After all, they are addressing the entire group and their presentations should be as smooth as possible.

Since some speakers may ask for a wireless mic on site, it's important to make sure your AV company approves the speakers' requests through you. (This guideline applies to all AV equipment added on site.) When given the choice, a speaker will almost always select a wireless microphone over a hardwired mic, not realizing the cost difference.

# Do You Need A Technician?

It's obvious that technicians are required for major audio-visual productions, but it also makes sense to have a technician in a meeting room in the following situations:

**General Sessions.** An on-site technician can prevent and/or resolve problems quickly, which can save your organization time as well as embarrassment. If only a podium microphone, lavalier microphone, or overhead projector's being used, however, it's probably not necessary to hire a technician for the event.

**Important Video/Computer Presentations.** For important presentations involving video playback or multiple computers, you should definitely consider hiring a technician. Many speakers, after all, struggle to locate the "play" button on a VCR or adjust volume levels. A technician can cue the video for the speaker's signal to play the tape and adjust volume levels and light levels during the presentation. When multiple computers are used in a session, a technician can swiftly switch from one computer to another with little or no delay.

**35mm Xenon Projector.** This particular projector is usually used for important slide presentations, particularly for medical meetings. It can be intimidating to speakers, however, so it's always a good idea to hire a technician to operate it. In addition, bulbs on Xenon projectors are very difficult to change should they blow during a session.

**Multiple Pieces of Equipment.** A technician can be very helpful to speakers when multiple pieces of equipment are being used during a meeting. It's not uncommon, for example, for a 35mm projector, video playback, overhead projector, and computer projection to be used in a single session with multiple speakers. A technician can assist each speaker with the start of the presentation while adjusting light levels to help audience members see the screen.

**Multiple Microphones.** If more than four microphones are being used, especially wireless microphones, it's wise to have a technician in the room to adjust volume levels so that each speaker can be heard without feedback problems.

Lastly, ask your AV supplier to check with all speakers before their sessions regarding the operation of the equipment. Making sure that they know how to use their projectors and showing them the location of the light switches and how to adjust them, for example, can make for smoother presentations.

— Ken Sien

## When to Order a Microphone

There are no specific rules on when a microphone is needed, but there are some general guidelines:

- If there are fewer than 60 people in the room, a microphone isn't necessary unless the presenter is soft-spoken or the ceiling height is 15 feet or more. If a speaker is presenting a multi-day seminar, however, you may want to order a mic to preserve his or her voice. If the session is being audiotaped, a mic is definitely required.

- When attendance is greater than 60 to 75, a microphone is recommended. Even though some speakers feel they can project sufficiently to a group of 100, it may be difficult for people in the back of the room to hear over background noises such as coughing, throat clearing, or paper shuffling.

- Standing microphones for audience questions aren't necessary for sessions of less than 100 people. Many attendees already feel uncomfortable approaching a microphone and most likely won't use it for small meetings.

- For large groups where audience participation is part of the program, you'll need audience microphones and, of course, a mixer so that the volume on the different mics can be controlled.

## Audio Mixers

Audio mixers are used to connect multiple pieces of sound equipment, such as microphones, cassette players, compact disc players, VCRs, and computers, to the public address (PA) system, and allow control over the volume level of each piece of equipment.

While it varies from AV company to AV company and facility to facility, an audio mixer is generally needed when:

- Four or more microphones are required.
- A cassette player, CD player, VCR, or computer sound is connected to a PA system.

The most commonly used audio mixer is a four-channel model, meaning you can connect four audio devices (such as one podium mic, one lavalier mic, one standing mic, and a cassette player) to the PA system. If more inputs are needed, additional four-channel mixer(s) can be added or an audio mixer with more inputs can be used.

## External PA Systems

Most meeting rooms in hotels and convention centers have a built-in PA system, except for small rooms of less than 1,000 square feet. But there are times when you'll want to use an external PA system, which involves renting speakers, an amplifier, a mixer, and microphone(s). External PA systems are typically used for general sessions, awards banquets, or special events utilizing elaborate AV presentations or audio tracks that are in stereo or rich in sound.

Depending on the size of the group and the need for quality sound, it's easy to spend up to several thousand dollars a day on an external PA system. When using a built-in PA system, on the other hand, you only need to pay for the mic and perhaps a mixer.

Making the right AV decisions will come with experience. Meanwhile, make every effort to locate an AV company that you can trust and that will give you the guidance you need.

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## Lighting Problems Solved

**N**aturally, it's always beneficial to make the image on the projection screen as bright as possible. This objective can be achieved by lowering the lights in the meeting room, but in doing so there may not be enough light for attendees to take notes or read handouts.

A much better alternative is to turn off the lights above the screen, which will greatly enhance the image. This may require contacting another department within the facility, however, and waiting 15 to 20 minutes. The solution? Ask your AV company or convention services manager to have the lights turned off above the screens when the meeting rooms and AV are being set up.

Additional lighting considerations come into play when convening in an exhibit hall. Many exhibit halls (and some meeting rooms) only feature mercury vapor lighting. Mercury vapor lights are either completely *on* or *off*; the light level cannot be adjusted. What's even more important to keep in mind is that once mercury vapor lights are turned off, it takes about five to 10 minutes for them to come back to full illumination. In addition, projection in a room with this type of lighting yields a screen image that's not easily viewed. So be on the lookout for mercury vapor lights when conducting your site inspections.

— Ken Sien

## Additional AV Tips

- To avoid feedback you can simply turn down the volume of the mic, use an audio mixer, or turn off any PA speakers above the area where the main microphones are used.
- Find out if the meeting facility has any audio-visual policies or restrictions, such as patch fees (a charge from the facility if you use the in-house sound system for your mics) or union requirements.
- If you're considering booking a non-carpeted room in which microphones will be used, be sure to test the acoustics with a mic during your site inspection.
- When ordering flipcharts (average price: \$25), remember that you are actually renting the hardback easel (average price: \$5) ... but you are buying the flipchart pad (average price: \$20). Depending on how frequently it's used, one flipchart pad may last a week.
- If you order a flipchart for four days, you may be charged \$25 a day for four days, totaling \$100. But the actual charge should be \$40 (hardback easel at \$5 x 4 days = \$20, plus a one-time charge of \$20 for the pad), resulting in a savings of \$60.
- If you'll be using draping for rear projection, request that the AV company place heavy weight on the bases that hold up the pipe and drape in the air. (Don't assume this will automatically be done.) When drape is elevated 12 to 16 feet, it becomes top-heavy and unstable.
- Request that back-up equipment be available on site (at no charge).
- Leave 35mm projector bulbs on except during long breaks. In most cases, the only time a bulb blows is when it is turned on.
- Negotiate to have a technician outside breakout rooms to stand by for problems.
- Trying to stay within budget is a concern for every organization, but sometimes selecting the least expensive piece of AV equipment is not always the best decision.

— Ken Sien

# Selecting the Right Screen

In contrast to all the changes in the audio-visual industry in recent years, there have been only a few changes to screens since the early 1900s. Still, screens remain an important item when projecting information to audiences. While there is no such thing as a “state-of-the-art” screen, ordering the right size and type of screen is not always easy. In this section, we will discuss the types and formats of screens available, how to determine the correct size, and the proper placement of the screen in the meeting room.

## Screen Types

There are a few types of screens available, though the most common are tripods and fastfolds. Other types include “existing screens,” which are built into meeting rooms, and cradle or saddle screens, which Conferon doesn’t recommend and are rarely used today. Common screen types and sizes are usually listed on an AV company’s price list, but most AV companies should have access to uncommon types and sizes as well.

All of these screens serve the same purpose of projecting an image, but there are advantages and disadvantages to each type. Your AV budget and appearance preference can help you determine which type to order. Following are the advantages and disadvantages of each type of screen:

Screen Type	Advantage	Disadvantage
Tripod	Less expensive Anti-keystone device available in sizes less than 8' Fast to install	Largest size is 8' Not attractive in appearance Full dress kit not available
Fastfold	Appearance is excellent Sizes can be very large Rear projection available Dress kits are available to improve appearance	More expensive No anti-keystone device available More labor intensive
Cradle/Saddle	Sizes can be fairly large Less expensive Somewhat easy to install	Appearance is poor No good way to control screen image height Dress kit not available
Existing (Built In's)	Usually complimentary Size can be fairly large	Screen can't be moved Meeting room must be set around screen

Tripod screens are a great choice for overhead projectors due to the anti-keystone device. Keystone occurs when the distance from the projector lens is greater to the top of the screen than to the bottom. The resulting image looks like a

“keystone” and is impossible to focus on both the top and bottom at the same time. The anti-keystone device on a tripod screen corrects the problem, allowing the overhead image to focus correctly. Unfortunately, the keystone device is only available on tripod screens that are less than eight feet.

If you order tripod screens, request that the AV company skirt the bottom of each screen. Not every company does this, but when it is done, it greatly improves the appearance of the screen.

A full dress kit, available only for fastfolds, gives the screen a movie theater look by placing drapery around all four edges. While this increases your costs, it brings a more professional look to the AV presentation. Dress kits are most commonly used in general or plenary sessions or anywhere a “finished” look is important. They add additional weight to the top of the screen, but with additional support brackets (which you should request), you should encounter no problems.

If you are looking for a more professional AV presentation, and have adequate meeting space and a larger AV budget, you have the option of using rear projection. Rear projection, sometimes referred to as RP, places all projectors behind the screen. This method is more expensive because it requires additional draping along the sides of the screen and possibly behind the stage. It’s also only available with fastfold screens.

## Screen Formats

There are two primary screen formats — square and rectangle. Examples of square screens include: 7'x7', 10'x10', and 12'x12'. Rectangular screens are available in a variety of sizes including 7'x10', 9'x12', and 10'x14'. (Note: The first number listed is the screen’s image height; the second number listed is the screen’s image width.)

Screens are designed to match the type of projector you are using. For example, a 35mm projector has a 2 by 3 image ratio and video/computer projectors have a 3 by 4 image ratio. Be sure to order a screen whose size matches the image ratio of your projector.

The format you choose will depend on the projection equipment used. When ordering an overhead projector or a

35mm slide projector with both horizontal and vertical slide images, a square screen is likely necessary. One exception to *not* ordering a square screen is when there will be both overhead and video/computer projection on the same screen, but the overhead is used sparingly.

Rectangular screens that match the image ratio of your projector are recommended for projecting video, computer, and horizontal 35mm images because they allow you to project a larger image to the audience as it relates to the ceiling height and to fill the screen completely.

Example: Let's say you are staging a computer presentation for 400 people in a room with a 17-foot ceiling. If you use the formula below to determine the maximum height for a square screen, the largest size would be 12'x12'.

(Your actual image would be 9'x12'.) If you use the same formula for a rectangular screen, you discover that you're able to project a 12'x16' image (3 by 4 image ratio). The rectangular screen gives you a 33 percent larger image than the square screen.

If the scenario is such that your overhead projector is important, but you still need to present material via videotape or computer, the image should be projected as high as possible on the square-formatted screen.

### Maximum Screen Size

When it comes to ordering the correct screen size, there is one important rule to remember: *In almost every single case, there is no such thing as a screen that is too large.* If an attendee or speaker complains about the screen size in a session, it will most likely be because it is too small, making the information difficult to read. You obviously won't need to order a 12-foot screen for your breakout meeting for 100 people, but it is better than ordering a five-foot screen.

When determining proper screen size, it is essential to know the ceiling height in every meeting room where a screen will be needed. You should also be aware of any obstructions such as chandeliers or coves. The meeting room specifications may say the ceiling height is 18 feet, for example, but there could be a chandelier that hangs down three feet, making the actual clear ceiling height 15 feet. When inspecting a facility, take notes about these items since they could trigger changes in your room setups down the road.

Once you know the actual ceiling height in all of the rooms, use the following two general formulas to determine the maximum screen sizes:

- For meetings of *less* than 200 people: Subtract 4' from the clear ceiling height to determine the maximum size of your screen.
- For meetings of *more* than 200 people: Subtract 5' from the clear ceiling height to determine the maximum size of your screen.

Example: If you're having a meeting for 300 people in a room with an actual clear height of 17 feet, you would subtract five feet from that figure (based on the formulas above) and come up with a maximum screen height of 12 feet. (Note: If the ceiling were 35 feet high, you would not order a 30-foot-high screen. Rather, you would order a smaller screen that meets your projection goals.)

For meetings of more than 200 people, you will notice that we subtract an additional foot. We do this because the farther back you sit, the higher the bottom of the screen must be in order for attendees to see it without obstructions. For a more precise determination of the distance that the bottom of a screen must be from the floor, Conferon recommends that for every 15 feet of seating, the screen should be raised an additional four inches in order to create the optimal view for attendees, keeping in mind that the minimum distance from the bottom of any

screen to the floor is four feet.

These formulas also can be used in reverse to determine the minimum ceiling height to accommodate your program if you know the screen size you want:

- For meetings of *less* than 200 people: Add 4' to the desired screen height.
- For meetings of *more* than 200 people: Add 5' to the desired screen height.

Example: If you know you need a 10-foot screen for 250 people, you would add five feet to that figure (based on the formulas above) and come up with a minimum ceiling height of 15 feet. If you plan on using a drape kit on your screen, add one more foot and seek out a meeting room with a ceiling height of at least 16 feet.

### Minimum Screen Size

We have talked about calculating the maximum screen size, but there are situations where it is necessary to calculate the *minimum* screen size in order to ensure that everyone can read what is on the screen. To do this, we use the

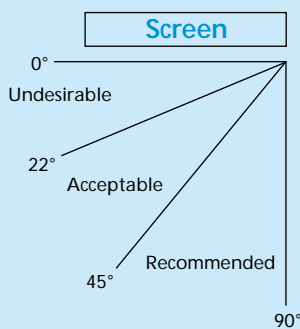
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# Screen Placement

There are three options for placement of a screen within your stage set — center stage, to one side of center stage, or in a corner. When deciding on the placement, ask yourself the following question: “What is more important in the presentation, the speaker or the information on the screen?” Generally, the most important element should be positioned in the middle of the room since it is the focus of attention.

If the speaker is conducting software training and using computer projection, for example, the screen should be centered and the speaker should be off to the side. If the presenter is a motivational speaker who uses some AV support, *he* or *she* should be in the center of the room and the screen should be to the side of the speaker. Placing a screen in a corner is rarely done except when trying to save space for a rear-screen presentation.

In addition, you need to be aware of the angle at which attendees will be in relationship to the screen. The most desirable angle is between 45° and 90° degrees, although 22° to 45° degrees is acceptable. Any angle less than 22° is not recommended because the angle is too acute to provide easy reading of the projected material. At Conferon, we prefer a minimum angle to the screen of no less than 30°.



Here are some other helpful tips regarding screen placement:

- Do not block fire exits.
- Be sure that lighted exit signs do not shine through the rear of screen.
- The darker the area above the screen, the brighter the projected image will be. So ask the AV company or meeting facility to turn off lights above the screen either by shutting off circuit breakers or unscrewing those specific light bulbs.

Since most people are right handed, place the screen so that the speaker can refer to his presentation material with his right hand.

- All projectors *must* be positioned at a 90° angle to the *center* of the screen.

— Ken Sien

Conferon “2 x 10” formula. The 10 in this formula helps to determine the minimum screen size when a room is large but has a low ceiling. You can use the 10 two different ways:

1. *If you know the length of the room*, divide the length by 10 to calculate the minimum screen image size for that room. Example: If a meeting room is 120 feet long, the screen image should be no smaller than 12 feet.

2. *If you know the screen height*, multiply the screen height by 10 to determine the maximum distance from the screen that attendees can sit and still be able to read the projected material. Example: For an eight-foot screen, seating should be no farther than 80 feet away.

These formulas also can be used to find out whether a challenge exists with a particular meeting room. Example: The room is 40' x 80' with a ceiling height of 11 feet. Since the length of the room is 80 feet (assuming the screen is set on the short wall of 40 feet), the minimum screen size is eight feet in height (80' length ÷ 10' formula = 8' screen). Since the bottom of the screen must be at least four feet from the floor, a 12-foot ceiling is required if seating were to be 80 feet from the front of the room. In this situation, a seven-foot screen is the maximum you could use and people should not be seated farther than 70 feet away.

## Distance to First Row of Chairs

The “2” in the “2 x 10” formula is used to determine the recommended distance from the screen to the first row of seating. If a delegate is seated the proper distance from the screen, she will be able to see the entire screen with one glance. If she is seated too close to the screen, however, her eyes will have to dart back and forth in order to see the entire image.

The distance from the screen to the first row of seating is calculated by doubling the image screen height. Example: For a 12' x 12' screen, the first row of seating should be 24 feet from the screen.

Following these guidelines will enable attendees to comfortably view projected information and help the speaker achieve the objectives of the meeting.

— Ken Sien