

How to Hire the Right PA System Your Event

So you've put a lot of work into organizing your event. Make sure you don't neglect the audio as it can make or break an event. With a bit of planning you can make a smart choice and get the perfect PA without spending too much.

So What Type of PA System Do I Need?

There's four main things to work out first:

- Application
- Sizing
- Quality and
- Environment

Application (What's the PA For?)

Different application specific systems might include:

- **Vocal PA.** This type of system is designed primarily for amplifying speech and perhaps some background music. This is probably the simplest type of PA. It may include as little as a microphone and powered speaker. Power requirements are modest.



Vocal PA system with a powered speaker.

- **Foreground Dance Music and Speech PA.** This type of PA may require sub speakers designed to handle bass frequencies. The power requirements increase quite a bit from a vocal PA.



Dance music PA system with 12" main speakers & a single sub speaker.

- **Live Music PA.** This is the most complicated system. It may also require multiple microphones, direct input boxes (DI boxes), foldback monitors (so singers can hear themselves), a mixer with foldback sends, processors such as compressors, limiters and special effects. Power requirements increase dramatically especially for live music with drums and bass guitar.



Band PA system with a 12" main speakers, 2 sub speakers, 2 foldback speakers, mixer & amplifier.

Sizing

Amplifiers and speakers are normally rated in watts. Whilst speaker efficiency varies, a good rule of thumb is to work out the power requirement in watts-per-person in the audience.

Power Requirements		
Application	Watts-Per-Person Indoor	Watts-Per-Person Outdoor
Vocal	1	1.5
Dance Music	2	3
Live Music (soloist or duo)	2	3
Live Music (band with drums and bass)	5	7

Quality

PA equipment quality is about both performance and reliability. The quality of equipment you need really depends on your application. If the system is for say home use at a party then you may not need to be as fussy as if it was for a large event with paying customers. The main question to ask is – if this equipment failed or sounded poor, what’s the worst that could happen? If the application is critical, then it may be worth considering a backup plan which includes having some extra stand-by equipment.

Most hire companies have reasonably good quality equipment. This is because budget equipment tends not to last well in a challenging hire environment. When purchasing PA equipment there’s a big difference in price between quality brands and budget brands but this is not as true for hire prices. You can actually hire some very expensive equipment for a pretty reasonable price.

Some of the popular, quality, brands to look for (in no particular order) include EV (Electrovoice), Mackie, RCF, Bose, Yamaha, Soundcraft, Allen & Heath, Shure & DBX. There’s plenty more but you can’t go wrong with these.

Environment

This is something often overlooked. The acoustical properties of a room can have a dramatic effect on the performance of a PA system. In a highly reverberant (echo prone) room you may want to consider speakers with narrow dispersion or a distributed speaker system. For a particularly wide or large room you may consider multiple front of house speakers.

An outdoor PA system doesn’t have the above problems but can require significantly more power as the sound is able dissipate easily. Weather conditions may also be a factor. Most PA equipment is not waterproof and electrical hazards can exist in wet conditions.

DIY or Get a Professional

There are basically two types of hire. **Dry Hire** (or **Driveway Hire**) is where a customer picks up and operates the equipment themselves. **Production Hire** is where the supplier delivers, sets up and often operates the equipment. Dry Hire is the most popular option.

Dry Hire Advantages

- Usually lowest cost.

- Very flexible (can hire equipment at short notice and use it anytime during the hire period).

Dry Hire Disadvantages

- The user is responsible for working out exactly what they need for their event although the hire company will normally be happy to give some guidance.
- The user needs to organize, pick-up, transport, set-up, operate, pack-up and return the equipment.
- The user may not have access to an experienced operator.

Production Hire Advantages

- Includes an experienced operator using a familiar standard system.
- Dry Hire companies need to allow for damage or loss from inexperienced, careless or dishonest customers. Production Hire companies however look after the equipment themselves while in use and therefore may offer a discount or better grade equipment.

Production Hire Disadvantages

- Generally higher cost since it includes an operator as well.
- Less flexibility (have to book in specific dates and times in advance)

How Much Should I Pay?

Application	Dry Hire	Production Hire
Vocal PA (100 people)	\$100	\$300
Dance Music PA (with sub speaker for 100 people)	\$150	\$275
Live Music PA (soloist or duo, with foldback, 100 people)	\$200	\$300
Live Music PA (band with drums and bass, with sub speaker, 200 people)	\$350	\$400

Whilst reasonable sized PA systems are supplied without sub speakers, in my opinion they don't quite deliver the same quality of sound for dance music or live music with drums and bass. You can see from the above table that as live music systems start to get larger, production hire starts to become more cost competitive.

PA Disasters and How to Avoid Them

Unavailability or Non Delivery

This is really the worst thing that can happen. If the PA doesn't work exactly right that's one thing but to have nothing at all can be a real disaster. For Dry Hire, you don't want to turn up at 12 on a Saturday only to find the hire company is booked out and you don't have time to source equipment elsewhere before closing time. With Production Hire, it's surprising how often the supplier simply doesn't show up or cancels the night before! The way to safeguard against this is to:

- Book Dry Hire equipment well in advance & pick it up early on the day of hire. Often a second day of hire is half price so you may even want to pick up the day before.
- Confirm any equipment delivery in the week leading up to the event & the day before.
- Ask the supplier to text you when they're on their way.
- Get the system delivered well in advance. For example if you have a Saturday night event then organize for morning delivery if practical. If they don't show or there's a problem then you've still got time to pick up something from another hire company.

Equipment Breakdown

Most hired PA equipment is very reliable but there's a few things you can do to reduce the risk or impact of failure.

- Build redundancy into your PA. Don't depend on a single component. For example it may be worth hiring 2 speakers even if you only need 1. Powered speakers are good in that they have their own amplifiers built in and can operate stand alone. For example if your mixer dies then you can just plug a microphone or iPod straight into the speaker. The most frequent equipment to fail are cables. It may be worth having a spare of each.
- Test the equipment when get it. Don't wait till 5 minutes before your event to find it doesn't work. For Dry Hire, ask the company to show you how it works before you leave (if practical).

Can't Figure Out How it Works!

Some equipment can be difficult to operate if you haven't used it before.

- Get the supplier to show you how to operate it.
- Test it well before your event.

Our Top 5 PA Tips

1. To avoid feedback (squealing), always place speakers in front of the microphone. It's often tempting to put them behind out of the way but you'll get very little volume before feedback.
2. Use correct microphone technique. Hold the mic 1 to 2 centimetres from your mouth.
3. For safety, keep speaker stands out of walkways or at least make the legs highly visible. Avoid running cables across walkways. Tape cables down.
4. If you experience "boomy" vocals during speech, and your mixer has a High Pass Filter (e.g. 100hz button), then use it.
5. Never let your speakers distort. This may damage them very quickly.

Equipment Pickup and Return Considerations

Picking up equipment sounds simple but there's a few things to consider.

- Opening Hours. Most hire companies are open Monday to Friday and part or all of Saturday. Some close around 1PM. I'm not aware of any open Sunday though there could be some.
- If you're picking up equipment for a Saturday or Sunday event remember that Saturday morning a peak time for most hire companies so allow extra time.
- If transporting equipment in your car it may be worth throwing in some towels or blankets as packing to prevent your car getting damaged.
- Equipment can be heavy so for safety secure this well in your car. Seatbelts can be useful for this.
- Sunday Hire. The convention is that if you pick up on a Saturday and the company is not open on a Sunday, then you just pay for the one day.
- Multiple day hire. Often a discount of up to 50% is given for extra days of hire.
- Equipment Return. Returning equipment on a weekday can be a problem if you work normal business hours so perhaps plan for someone else to return it. Always check the agreement to see what time equipment is due back else late fees may apply.

Checklist for Typical PA Applications

Vocal PA System for 100 People	
	1 x Microphone
	1 x Microphone Stand
	2 x Microphone Cable (1 as spare)
	1 x Lectern or music stand
	2 x Powered Speakers (min 10", min 150 watts each)
	1 x mixer with (min 1 x XLR microphone input + 1 jack input for iPod or CD)
	1 x iPod cable
	1 x CD Player
	2 x Speaker signal cables (check they match the mixer – XLR or TRS)
Dance Music PA System for 100 People	
	1 x Microphone
	2 x Microphone Cables (1 as spare)

	2 x Powered Speakers (min 12" 250 watts each)
	2 x Powered sub speaker (min 200 watts each)
	2 speaker stands
	4 x Speaker signal cables (check they match the mixer)
	1 x iPod cable
	1 x passive mixer with (min 1 x XLR input + 1 jack input for iPod or CD) OR 1 x dedicated DJ mixer (more suited to transitioning between musical tracks)
	Band PA System for 4 Piece Rock Band for 200 people
	3 x Dynamic vocal microphones
	2 x Dynamic instrument microphones
	1 x Kick drum microphone
	3 x vocal microphone stands
	3 x short instrument microphone stands
	10 x microphone leads
	2 x passive foldback speakers (min 12", min 200 watts)
	2 x passive speakers (min 12", min 300 watts)
	2 x powered sub speakers (min 12", min 200 watts) + signal cables
	1 x amplifier (for main speakers, min 400 watts per channel)
	1 x amplifier (for foldback speakers, min 250 watts per channel)
	4 x speaker leads
	1 x 8 channel passive mixer
	1 x stereo compressor/limiter + patch leads
	1 x reverb unit (unless mixer has on-board effects) + patch leads
	1 x stereo 31 band graphic equalizer + patch leads
	1 x 12 way multicore cable
	1 x iPod lead
	1 x CD player

I hope this report has enabled you to go out and find the right PA and have a successful, stress free event.

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