

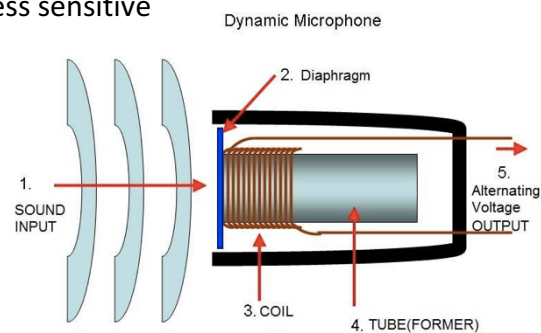
Mics

General Info

Transducer types

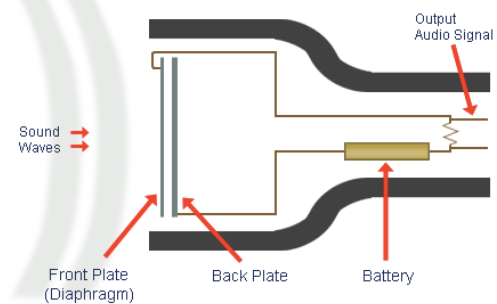
Dynamic

- the opposite of a speaker
- Uses a coil floating over a magnet to create a small amount of electricity
- Very durable, but lower quality and less sensitive
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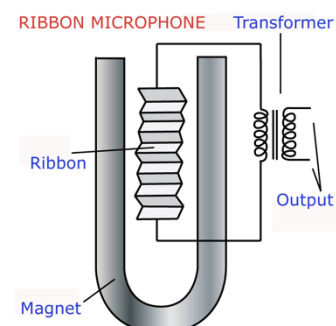
Condenser

- Uses Phantom Power to create a static electricity charge between two thin pieces of metal
- Very sensitive, much better quality, but more delicate
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Ribbon

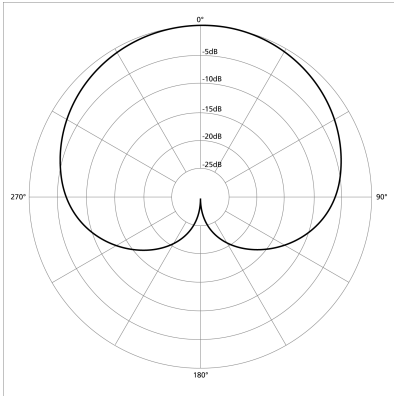
- A really thin (2-4 micron) ribbon of metal surrounded by a magnet
- Sensitive, but low power output. Great warm sound, but delicate
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Pickup Patterns

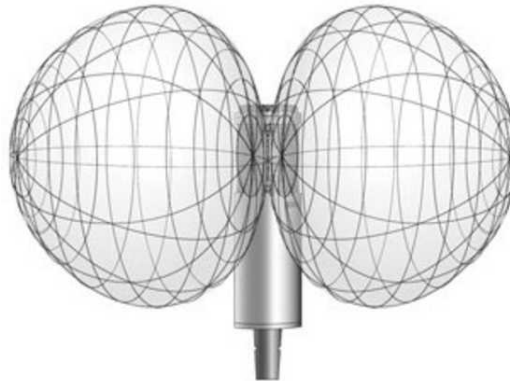
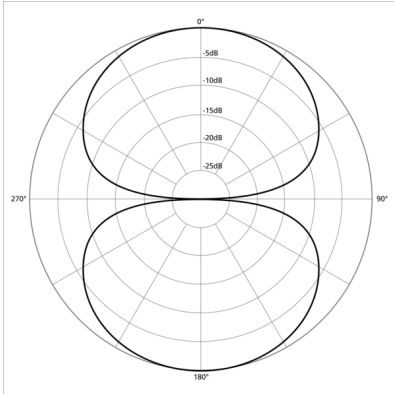
Unidirectional (cardioid, hyper/super cardioid)

- Hearing in "one" direction. Cardio = hear, cardioid = heart shaped pattern



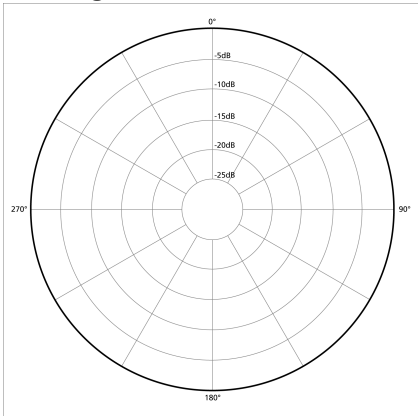
Bidirectional (Figure 8)

- Hearing in two (opposite) directions



Omnidirectional

- Hearing in all directions. Omnivore eats everything, omnidirectional hears everything.



Styles

Large/medium diaphragm condenser mics are typically used in a studio or one one instrument. They also sound great live, but are large.

Small diaphragm mics are very popular for live situations, but do not get the same low frequency response.

Micro styles are very small. The tiny surface area doesn't do as well with low, but really convenient

Handheld mics typically don't sound as good on strings. SM57s are ok sounding.

Podium – Usually a hyper-cardioid pickup pattern, and usually small. Can be a good double for strings.

Hanging mics – Usually small diaphragm condenser mics. Really versatile and convenient, but not great bass.

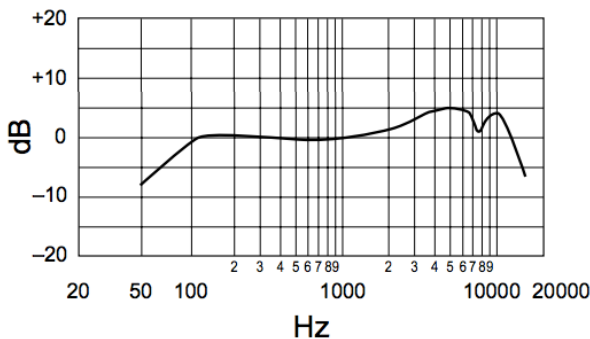
Portable Recording setups give quite and accurate representation, but not at the highest quality. Great for recording solos and rehearsals, not great for concert recordings.

Quality and cost

Mics have many descriptions to help assess quality. EQ response is one of the more telling signs, but the companies will only tell you the good parts. Find a friend or vendor that you trust to get opinions. Quality and cost are directly related. However, the law of diminishing returns applies. \$200-\$800 per mic will set you up nicely for concert recording.

SM58 - \$99 – “Vocal mic”

Frequency response



Recording Ensembles

Environment

- Avoid using your classroom unless it really does sound good, and you have a fair amount of space in front of the group before the wall.
- Place mic pairs at least 10' up and 10' behind the conductor

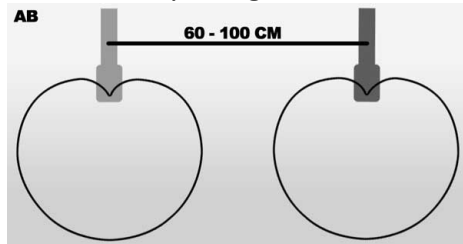
Microphones

- At least a pair, as many as you want
- The best you can get
- Do not send the sound of these mics to your main speakers if amplifying

Common techniques

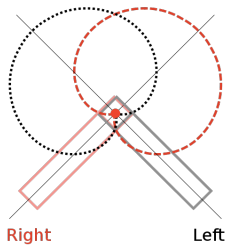
AB

– very straight ahead and easy to set up. Can sound passible in most environments



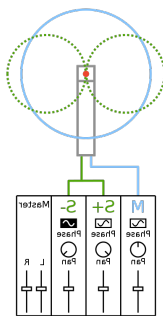
XY

- easy and versatile, works in many environments
- Two mics placed at a 90 degree angle. A wider angle may be used for a wider image, especially if they are very close to the ensemble.
- The capsules need to be as close together as possible
- Unidirectional mics are best for this. Figure 8/Bidirectional may be used to capture more “room” sound. This is called a Blumlein Pair



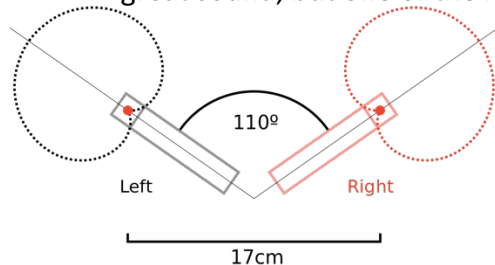
MS – Mid Side

- great sound, but requires nice mics and some know how.
- One unidirectional or omnidirectional mic facing the ensemble (for a center sound) and one bidirectional mic facing the walls to the left and right of the ensemble.



ORTF – Office of Radio and Television of France

– great sound, but one of the hardest to get “tuned” into a space



More than two mics

- Individually mic for each section sounds nice, but hearing more than just the people closest to the mic can be hard. Still recommend at least one ambient/room mic

Amplified/Live Situations

Be conscientious of where your speakers and mics are placed. Feedback is the enemy

Try to stick with a small unidirectional mic

If it's a really loud environment use dynamic mics or sound shields

Consider versatility - can you use the mics for the singers in the musical? A podium mic? A hanging mic?

Piezo mics and pickups are lower sound quality, but great for live situations

Consider mobility – one spot, moving a little, running around

Mics I like

Prices are per EACH mic. Some pros and cons are listed.

For recording:

Rode NT2a – \$400, AB MS or ORTF, fairly large so better for studio than on stage

Rode NT5 - \$215, ok sound, AB or MS. Great double with pit/front ensemble in marching band.

Miktek C7e - \$900, AB XY MS ORTF, really versatile, beautiful sound, fairly large so can be “too big” for stage

DPA4098 – \$560, A pair in AB, can double for podium, can also be XY or ORTF, good solo mic

For amplified sound

Shure SM57 - \$99, the lowest cost mix I would use live. Doubles for most instruments. Decent sound, but not lovely.

Isomax2 - \$263, very small, meant for instruments

Countryman e6 - \$450, great head-worn mic for singers, sound on strings is not very acoustic but not bad

Not a mic, but Fishman (and other pickups) can be used both for live and recorded sound. Loss of some low and high frequency content results in a more nasally sound quality. But they tend to be cheap and easy.

How do I afford this? Partners!

Band – Marching Band (Front Ensemble), Jazz solos

Choir - (piano, jazz)

Theater – Head-worn mics, hanging mics, podium mics

Music Tech – or theater tech, video production, etc

Technology Grants

Other Gear you may want/need

- Mic stands, telescoping or regular
- Black cable and fishing line to hang
- Quality mic cables
- Preamp
- Interface
- CD Recorder, SDCard Recorder
- Mixing Board
- Spacer Bar