



SNS COLLEGE OF ENGINEERING

(Autonomous)

DEPARTMENT OF MECHANICAL ENGINEERING



CONSUMER ELECTRONICS



Guess Today's Topic????





WHAT IS AUDIO SYSTEM

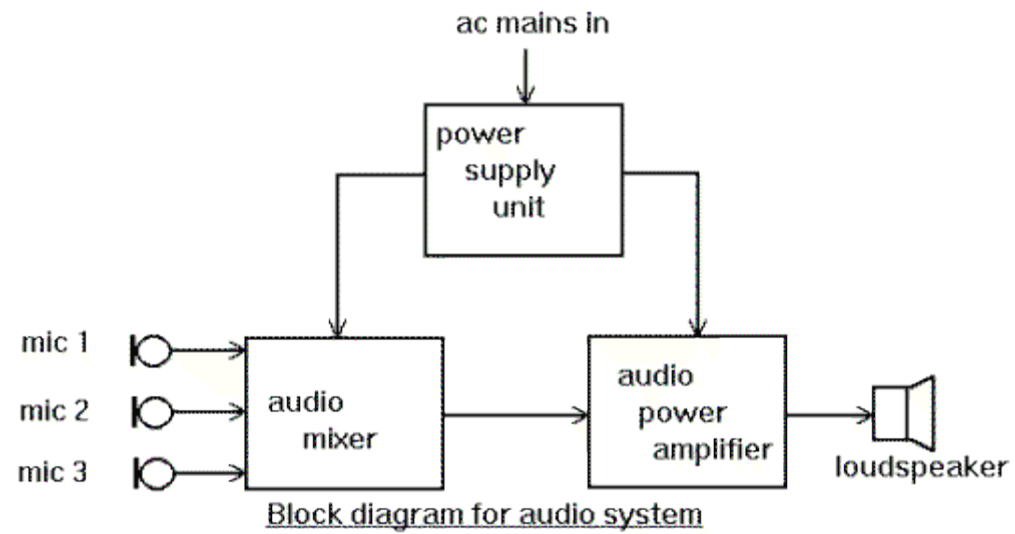


What is meant by audio system?
Definitions of audio system. **a system of electronic equipment for recording or reproducing sound.**



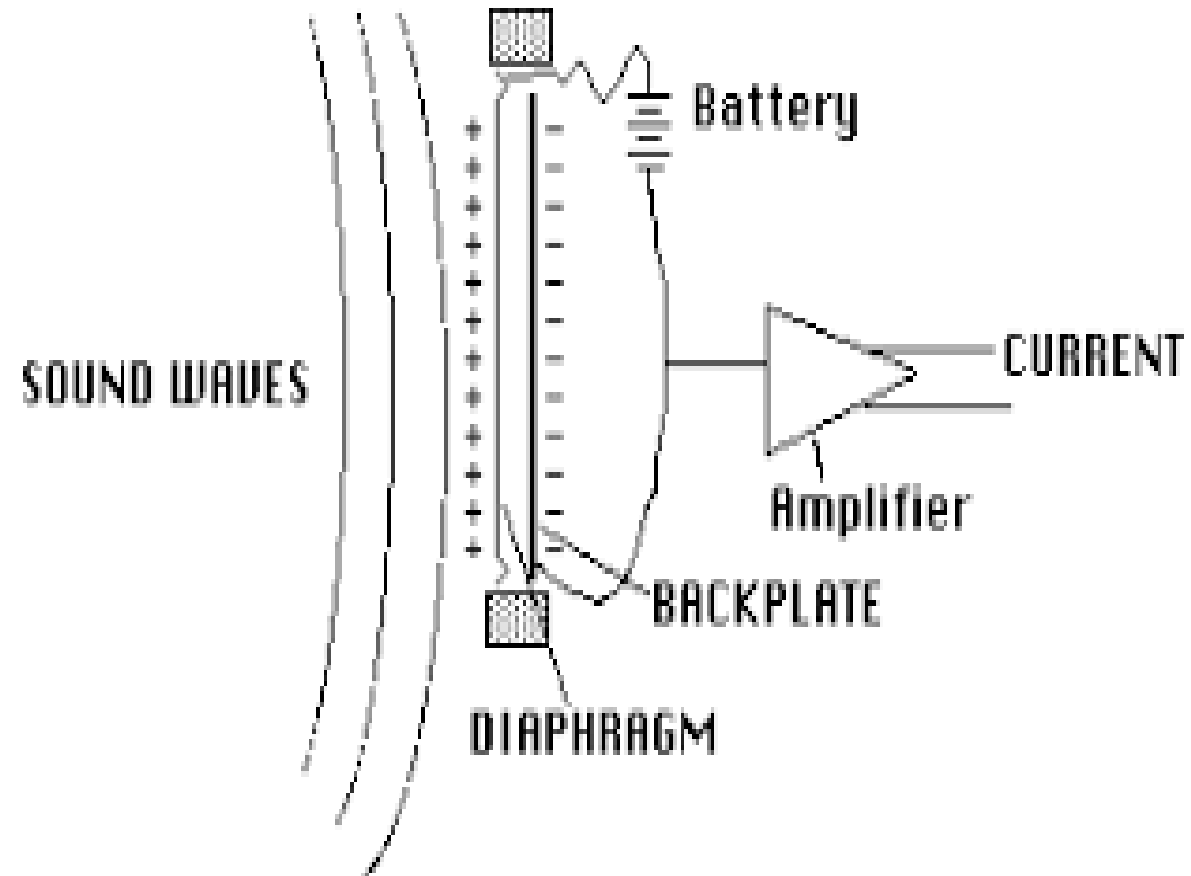


WHAT IS AUDIO SYSTEM





MICROPHONE DIAGRAM





USE OF MICROPHONE



A microphone is a device that **translates sound vibrations in the air into electronic signals and scribes them to a recording medium or over a loudspeaker**. Microphones enable many types of audio recording devices for purposes including communications of many kinds, as well as music vocals, speech and sound recording.

•TYPES OF MICROPHONE

- Dynamic Microphones.
- Large Diaphragm Condensor Microphones.
- Small Diaphragm Condensor Microphones.
- Ribbon Microphones.





MICROPHONE



A **microphone**, colloquially called a **mic** or **mike**, is a [transducer](#) that converts [sound](#) into an [electrical signal](#). Microphones are used in many applications such as [telephones](#), [hearing aids](#), [public address systems](#) for concert halls and public events, [motion picture](#) production, live and recorded [audio engineering](#), [sound recording](#), [two-way radios](#), [megaphones](#), and [radio](#) and [television](#) broadcasting. They are also used in computers for recording voice, [speech recognition](#), [VoIP](#), and for other purposes such as ultrasonic sensors or [knock sensors](#). Several types of microphone are used today, which employ different methods to convert the air pressure variations of a [sound wave](#) to an electrical signal. The most common are the [dynamic microphone](#), which uses a coil of wire suspended in a magnetic field; the [condenser microphone](#), which uses the vibrating [diaphragm](#) as a [capacitor](#) plate; and the [contact microphone](#), which uses a crystal of [piezoelectric](#) material. Microphones typically need to be connected to a [preamplifier](#) before the signal can be [recorded or reproduced](#).





MICROPHONE



The sensitive transducer element of a microphone is called its *element* or *capsule*. Sound is first converted to mechanical motion by means of a diaphragm, the motion of which is then converted to an electrical signal. A complete microphone also includes a housing, some means of bringing the signal from the element to other equipment, and often an electronic circuit to adapt the output of the capsule to the equipment being driven. A [wireless microphone](#) contains a [radio transmitter](#)





MEASUREMENT MICROPHONE



Some microphones are intended for testing speakers, measuring noise levels and otherwise quantifying an acoustic experience. These are calibrated transducers and are usually supplied with a calibration certificate that states absolute sensitivity against frequency. The quality of measurement microphones is often referred to using the designations "Class 1," "Type 2" etc., which are references not to microphone specifications but to [sound level meters](#). A more comprehensive standard for the description of measurement microphone performance was recently adopted.

Measurement microphones are generally scalar sensors of [pressure](#); they exhibit an omnidirectional response, limited only by the scattering profile of their physical dimensions. [Sound intensity](#) or sound power measurements require pressure-gradient measurements, which are typically made using arrays of at least two microphones, or with [hot-wire anemometers](#).





CALIBRATION



To take a scientific measurement with a microphone, its precise sensitivity must be known (in [volts](#) per [pascal](#)). Since this may change over the lifetime of the device, it is necessary to regularly [calibrate](#) measurement microphones. This service is offered by some microphone manufacturers and by independent certified testing labs. All [microphone calibration](#) is ultimately traceable to [primary standards](#) at a national measurement institute such as [NPL](#) in the UK, [PTB](#) in Germany and [NIST](#) in the United States, which most commonly calibrate using the reciprocity primary standard. Measurement microphones calibrated using this method can then be used to calibrate other microphones using comparison calibration techniques.

Depending on the application, measurement microphones must be tested periodically (every year or several months, typically) and after any potentially damaging event, such as being dropped (most such microphones come in foam-padded cases to reduce this risk) or exposed to sounds beyond the acceptable level.





ADVANTAGE



ADVANTAGE

- ➔ It can help in improving safety and security of drivers and riders when used with voice activation systems e.g. switching on radio, keeping phone in speaker mode etc.
- ➔ They are inexpensive in general.





MCQ



1. Which is the device of the class called transducers which converts sound waves in air into electrical waves of the same frequency and shape?
a. Headphone b. Microphone c. Speaker d. All
2. The frequency range of audible sound is normally
a. 20 Hz to 20KHz b. 2 Hz to 2KHz c. 30 Hz to 20KHz d. None
3. Electrostatic transducers, which convert an electrical signal to a corresponding sound in the user's ear is called _____
a. Headphone b. Microphone c. Speaker d. a & b
4. Low frequency speakers are commonly known as
a. Woofers b. Speakers c. Loudspeakers d. Headphone





*Thank
you*

