# SNS COLLEGE OF ENGINEERING

(Autonomous)

DEPARTMENT OF MECHANICAL ENGINEERING

## CONSUMER ELECTRONICS


Guess Today's Topic????

# Public Addressing System

A **public address system** (or **PA system**) is an electronic system comprising microphones, amplifiers, loudspeakers, and related equipment. It increases the apparent volume (loudness) of a human voice, musical instrument, or other acoustic sound source or recorded sound or music. PA systems are used in any public venue that requires that an announcer, performer, etc. be sufficiently audible at a distance or over a large area. Typical applications include sports stadiums, public transportation vehicles and facilities, and live or recorded music venues and events. A PA system may include multiple microphones or other sound sources, a mixing console to combine and modify multiple sources, and multiple amplifiers and loudspeakers for louder volume or wider distribution.

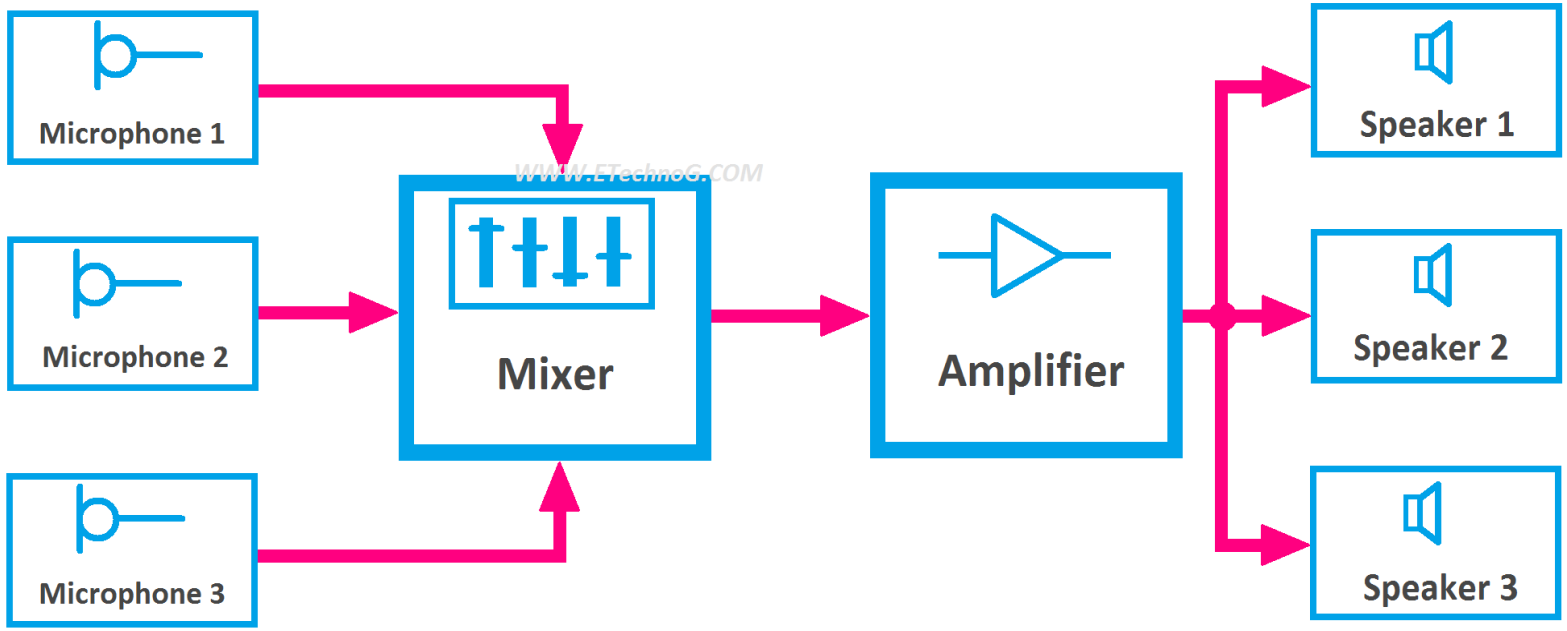
Simple PA systems are often used in small venues such as school auditoriums, churches, and small bars. PA systems with many speakers are widely used to make announcements in public, institutional and commercial buildings and locations—such as schools, stadiums, and passenger vessels and aircraft. Intercom systems, installed in many buildings, have both speakers throughout a building, and microphones in many rooms so occupants can respond to announcements. PA and Intercom systems are commonly used as part of an emergency communication system.

**As a general rule, planning of a PA system starts with**

- Calculation Of The Area To Be Served.
- Estimation Of The Required Audio Power.
- Choice Of The Types Of Speakers To Be Utilised.
- Estimating The Approximate Number Of Speakers.

# Public Addressing System

# BLOCK DIAGRAM




*Public Address System or PA System Block Diagram*

# Basic Requirements of PA System:

•**Acoustic feed back**: The sound from the loudspeakers should not reach microphone. It may result in loud howling sound.

•**Distribution of Sound Intensity**: Instead of installing one or two powerful loudspeakers near the stage alone, audio power should be divided between several loudspeakers to spread it right up to the farthest point. This covers every specified area.

• **Reverberation (Echo):** Install several small power loudspeakers at various points to get rid of problem of overlapping of sound waves in the auditorium, rather than using single power high power unit..

•**Orientation of speakers**: The loudspeakers be oriented as to direct the sound towards the audience and not towards walls. The loudspeakers should preferably be placed a meter off the floor, so that their axes are about the height of the ears of the listeners.

# Basic Requirements of PA System:

• **Grounding**: Chassis, shields of equipment's, and coaxial cables should be properly earthed.

• **Ambient Noise**: Use noise cancellation microphones to eliminate ambient noise.

•**Intelligibility**: The loudspeakers should not be located beyond 16 meter apart, 10 meter separation is considered quite good. If they are more than 16 meter apart, the delayed sound from loudspeakers impairs intelligibility, when delay is 45 ms or more

•**Selection of Microphone**: Microphone for PA system should be preferably cardiod type, it will prevent reflection of sound from loudspeakers. For dramas use directive microphone.

•**Impedance Matching**: Matching of total loudspeaker impedance with output impedance of amplifier is necessary fro maximum transfer of energy from amplifier to loudspeakers.

# Charecteristics of Public Addressing System

The public address system is a broadcast that serves the public within a specific scope. Under normal circumstances, the public broadcasting system signals are transmitted through the broadcasting lines arranged in the broadcasting service area, usually a one-way (downstream) cable broadcasting.

The public address system is usually set up in agencies, troops, enterprises, schools, communities, buildings, supermarkets and various venues, such as school public address system, to release news and internal information, release schedule signals, provide background music, and use for paging (for example, broadcasting to find people) and forcibly inserting emergency broadcasts of catastrophic accidents, etc. The public address system also uses wireless transmission, but it is not mainstream.

# Advantages & Disadvantages

**Advantages**:

•convenient and practical.

•simple connection.

• small lines to sound accurate positioning,

•sound natural.

**Disadvantages:**

•easily lead to whistle, much volume on the microphone.

# Thank you