



Some advances in the management of hearing loss have been through assistive technology. Whether or not you wear a hearing aid, assistive technology can be used to make listening and understanding easier and more effective and help monitor your environment.

Assistive listening systems can be used for -

- One-on-one or group conversation.
- Telephone communication.
- Reception of TV, radio & sound systems.
- Reception of public address systems.

Assistive listening systems use auditory devices to -

- Deliver a clear signal to the listener's ear.
- Overcome the effects of distance between the listener and the sound source, such as a TV that is several metres away; or an announcement over a loudspeaker.
- Overcome the effects of background noise and reverberation, allowing speech to be heard clearly without unwanted background sounds.

How Assistive Listening Systems Work

A listening system consists of both a transmitter and receiver. The transmitter sends sound to the receiver which is worn by the listener.

The 3 main types of transmitter available in Australia are -

- Infra-red.
- FM.
- Induction loop.

Sound signal receivers consist of one of the following -

- A hearing aid with telecoil program (T-switch) or FM capabilities.
- Headphones.
- Ear buds.

Some Types of Listening Systems

Infra-red systems -

- Sound signals are converted into infra-red light and transmitted to an infra-red receiver which converts the light energy back into sound.
- An infra-red system can be used for listening to TV, radio or a sound system. It produces significantly clearer and often distortion free sound.
- With an infra-red receiver you have complete freedom of movement within line of sight of the transmitter but the signal will not go through walls. If you're listening to the radio or a CD player and move into a different room the signal will drop out.
- Infra-red systems are usually cordless and not suitable for outdoor use as sunlight affects transmission.

FM (frequency modulation) systems -

- Transmits sound via a radio frequency. The most portable solution as it is small, cordless, battery operated and usually does not require installation. Transmitter and receiver must be set to the same frequency.
- Can be used in conversational (one-on-one or group) situations and in the workplace, restaurants, cars, meetings, conferences, lectures and places of worship.

A transmitter (lapel or conference microphone) is located close to the source of sound.

The hard-of-hearing person wears a personal receiver in the form of either:-

- Headphones.
- Ear buds.
- Their own hearing aid/s with FM capabilities or T-switch plus a neck loop.

The receiver of an FM system does not have to be within line of sight of the transmitter. The FM signal travels through walls and ceilings so is not suitable if confidentiality is required. FM systems work indoors and outdoors.

Induction Loop / Audio Loop / Hearing Loop

These systems rely on electromagnetic energy to transmit sound. They are used in public venues such as meeting rooms, cinemas, theatres, retail/help counters, trains and platforms, buses, trams, taxis, nursing homes, places of worship and educational facilities.

An induction loop can help you hear clear, distortion-free sound without interference of background noise. Sound is picked up by 1 or more microphones, amplified and transmitted via a wire 'loop' to the receiver. The loop can be either a wire 'loop' installed in the venue or a neck loop that you wear. To receive the signal transmitted by the loop you can either use a loop receiver device or use the telecoil in your hearing aid which is activated via a T-switch on the hearing aid.

If only part of a venue is audio looped you must sit within this area to receive the loop sound clearly. Some venues may provide portable audio loop systems for use in small spaces. An International Deafness sign indicates the presence of a hearing loop.

Telephone Devices and Systems

Assistive technology can be used for easier telephone communication with or without a hearing aid:

- Some adjustable telephones can make the speaker's voice louder - some also offer tone control.
- Some telephones display a flashing light when there is an incoming call.
- Devices can be added to a non-adjustable telephone to enable adjustments in volume and tone or to amplify the ring.
- Devices can be added to a telephone to signal an incoming call via a flashing light or vibration.
- You can also utilize your hearing aid's microphone or telecoil (T-switch) if a hearing aid coupler is incorporated into the handset of the telephone.

If these options are not effective you can use a telephone typewriter (TTY) which uses a TTY machine or internet facilities to convert spoken communication to written text.

Visual Systems

Visual systems supplement or replace audio information. The main services currently available are:

- Television teletext and captioning that displays audio content as on-screen text, including descriptions of sound effects. You need a teletext decoder or set top box to access this. TV channels are obliged to offer this service under Equal Opportunity agreements.
- Real time captioning or CART (Computer Aided Real Time) captioning can be used for theatre performances, meetings, and conferences. The steno captioner may be present at the event, or operate from a remote location.
- The Telephone Typewriter (TTY) connects to a standard phone line and allows text messaging either to another TTY user, or via the National Relay Service. Full details of this service are available at www.relayservice.com.au. TTY using a computer and modem is also available.

Alerting Devices and Systems

Alerting systems are essential in emergency situations and helpful in terms of everyday convenience. A range of aids and devices are available:

- Devices that amplify the sound of door bells, alarm clocks and telephones.
- Devices that trigger a flashing light in response to door bells and ringing telephones.
- Devices that vibrate in response to a door bell, a baby cry, a smoke alarm or an alarm clock.