



# Audio Frequency Induction Loops

## WHAT IS A LOOP?

An audio frequency induction (loop) is a way of transmitting sound through a wire loop to the telecoil in a hearing aid or a suitable receiver.

They are mostly used to eliminate background noise.

## HOW DOES A LOOP WORK?

A loop system consists of a loop of wire around an area (eg a room) that is connected to an amplifier. A signal (eg television, stereo, PA system etc) goes to the amplifier, which drives a current through the loop. As the current from the amplifier flows through the loop, it creates a magnetic field within the looped area and transmits to the telecoil in a hearing aid or in a specifically design induction loop receiver within the looped area.

When a hearing aid user switches their hearing aid to the 'T' position on the hearing aid, the telecoil in the hearing aid picks up the changes in the magnetic field and converts them back into alternating currents. The alternating currents are amplified and converted by the hearing aid into sound.

## WHY USE A LOOP?

People who have a hearing loss need more than just louder sound. They can also benefit from an improved signal to noise ratio.

Loops have the following advantages:

- \* a number of people can benefit at the same time;
- \* the sound is still filtered through the appropriate settings in the hearing aid that suit an individual's hearing loss;
- \* no extra equipment is required on the hearing aid – the telecoil is usually built in; and
- \* they are relatively inexpensive.

## WHERE ARE LOOPS USED?

Look out for this sign:



- \* homes
- \* theatres/concert halls
- \* cinemas
- \* lecture theatres/auditoriums
- \* seminar rooms
- \* churches, places of worship
- \* TV lounges (in retirement communities, nursing homes & hospitals)
- \* point of sale locations such as ticket counters at train stations
- \* reception desks and information kiosks

- \* cars, buses, coaches, trams, trains, airplanes, cruise ships
- \* museum exhibits
- \* drive-thru windows such as those found at restaurants.
- \* personal neck loops for TV, Mobile phones etc

## ARE THERE SITUATIONS WHERE A LOOP IS NOT SUITABLE?

Yes, there are some. When the magnetic background noise (environmental noise) is loud, it may be impossible for anyone to receive a clear loop signal until the offending noise source has been removed. Where privacy is important, the loop needs to be carefully installed.

## WHAT ARE THE ALTERNATIVES TO A LOOP SYSTEM?

There are two other assistive listening technologies commonly used. Both operate by transmitting the audio signal to a receiver carried by the listener. These are commonly known as Infrared (IR) and FM carrier systems.

## ARE ALL HEARING AIDS COMPATIBLE WITH LOOPS?

While not all hearing aids are fitted with a telecoil, many hearing aids can be fitted with a telecoil. Hearing advocacy organisations, such as Self Help for the Hard of Hearing (SHHH), acknowledge the benefits of a telecoil and actively promote telecoil usage.

We recommend the hearing aid user always discuss the telecoil option with their audiologist BEFORE selecting a hearing aid to ensure it has a telecoil. Cochlear implants are all telecoil compatible.

Hearing aids equipped with a telecoil have a switch allowing either "M" (microphone) or T (telecoil) operation. Some models may have a switch marked MT (microphone and telecoil) or mT (muted microphone and telecoil).

- \* The M (microphone) position is for 'normal' listening; that is, receiving sound via the microphone built in to the hearing aid.
- \* The T position is for receiving the sound via the telecoil, which is built in to the hearing aid.
- \* The MT position, which is provided on some hearing aids, allows for listening simultaneously to both airborne sound via the microphone and to transmitted sound via the telecoil.

### WHAT ABOUT DIGITAL HEARING AIDS?

Digital hearing aids work in exactly the same way as analogue hearing aids in terms of induction loop use but you must make sure that the digital hearing aid has a 'T' switch position or 'T' program accessible by a program button or remote control. Check with your audiologist about this before you choose your aid.

Many digital hearing aids allow the relative levels between microphone and 'T' coil inputs to be adjusted by the audiologist. If the loop signal is too quiet or loud relative to normal microphone use, ask your audiologist to adjust it for you.

### DO LOOPS INTERFERE WITH HEART PACEMAKERS?

Under normal circumstances, a correctly installed induction loop system does not interfere with heart pacemakers. A minimum separation distance of two inches (50mm) should be maintained between loop cable and pacemaker to remove any potential for interference.



PEOPLE WHO HAVE A HEARING LOSS NEED MORE THAN JUST LOUDER SOUND. THEY CAN ALSO BENEFIT FROM AN IMPROVED SIGNAL TO NOISE RATIO.

