

Connecting to computers for hearing aid users

The mention of computers, CD ROM's and Multimedia is enough to strike fear in many a normally strong heart. Teachers of the deaf and parents also have to consider the effectiveness of computer sound for a hearing aid user in an average (noisy) room. Usually the hearing aid user is having to cope with poor quality sound (and probably turning up the volume and distracting others).



Many computer programmes now have sound as an integral part of their use, this information sheet shows you some options for a hearing aid wearer to connect into a computer sound system.

Radio system users should also read the Connevans information sheet: *Connecting fmGenie's to computers (ref B0FMGCOMP) or CRM-220's to Computers (ref. B0220COMP)*. These are available to download from www.connevans.com or if you do not have access to the web, ask for a free Connevans information CD with your next Connevans order.

Why would I want to connect a hearing aid to a computer?

Hearing aid users have accentuated problems when listening to sound from loudspeakers. When using computers there are often even more problems than usual caused by the combination of 'less than perfect sound' together with noise from disk drives, printers as well as from the rest of the family etc. Consequently, a hearing aid user may well have turned up the volume on their computer, so connecting directly might be much appreciated by those around them!

How do I tell if my computer is suitable?

Firstly – does your computer actually have a sound card?

If you have a pair of small speakers beside your computer yes you do, if you don't you will need to have a look in your manual or ask a friendly computer boffin! Just because a computer makes some sort of noise does not guarantee that a sound card is fitted – sorry!

Next, does the computer interfere with the hearing aid?

As direct input hearing aids rarely pick up noise from a computer (its always worth a quick check) we would advise using the direct input facility whenever it is available.

When a hearing aid is used on 'T', it is possible that the display screen may cause a buzz in the hearing aid. So before you buy any accessories from Connevans and start connecting things up, sit at the computer (with it turned on!) and and make sure that the hearing aids are not picking up any unwanted noises – a non hearing aid user may do this using an attenuated stetoclip. New TFT 'flat' computer screens (inc laptop computers) generate hardly any magnetic noise compared to the traditional TV screen type.

The bad news is that if you have a buzz when listening on 'T' and you have not got a direct input facility then – do not ask the audience or go 50/50 ... *but the good news is that you do not need to read this information sheet any further until you can solve the problem !*

If you are a non hearing aid wearer who is not familiar with hearing aids but who has been asked to do the experimentation for a hearing aid wearer, you may be interested to read the Hearing Aid First Aid section in the Connevans Catalogue which shows steto clips etc. that you can use to listen to a hearing aid.

So you now know that the hearing aids work OK near the computer and the computer has got a sound card – what happens next?





There are four options to consider for improving the sound quality from a PC for a hearing aid user.

Which option you choose will depend on the connections on your computer and/or what additional equipment you have available.

1. **Connecting into a suitable headphone socket**
 - a. Using the 'T' pick-up on your hearing aid(s) with an inductive device.
 - b. Stereo sound using the direct input facility on the hearing aids
 - c. Mono sound for single direct input hearing aid wearers
2. **Connecting to an amplifier unit which does have a suitable headphone socket**
3. **Connecting to a Connevans ATU30 auditory trainer**
4. **Connecting into a Connevans fmGenie or CRM-220 radio aid system**

OPTION 1: CONNECTING INTO A SUITABLE HEADPHONE SOCKET

If you want to use a headphone socket to connect to, then you have to look for one that is NOT on the CD drive. Some computer speakers have a headphone socket, if yours does then that should be ideal. If not, there is sometimes a headphone socket to be found on the sound card, accessible from the back of the computer. Have a look at the back of the computer, amongst all the wires and look for a socket with the  symbol.

Headphone socket on peripheral speakers – YES, should work

Headphone socket at the back of the computer – YES, should work

Headphone socket on the front of the CD drive – NO, won't work, see below.

Most modern computers have a headphone socket on the front of the CD drive but this socket usually only works for audio cd's played on the computer, it does not provide the sound from computer programmes, so you cannot use it for connecting your CRM-220, sorry!

If you have found a  socket, probably the best, if not the only, way to check that it is suitable is for somebody to use a set of personal stereo headphones and have a listen.

If you have found a suitable headphone socket and want to use headphones as well then you use the socket doubler (part no. *F387*).



If you do not have a suitable set of stereo headphones, Connevans also sell good value personal stereo headphones (part no. FMG7410) for checking computer headphone sockets. OK, I give in, these are not just good value – they are **cheap!**

In addition to the FMG7410 headset, Connevans are able to supply two further headsets and an extension lead which has its own in-lead volume control.



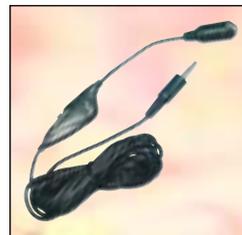
Stereo headphones
Connevans part no. FMG7410
Extremely good value but maybe for testing rather than extended use.



Stereo headphones
Connevans part no. FMG7420
Good listening quality and comfort.



Stereo earphones
Connevans part no. FMG7431
Good listening quality and comfort for those preferring earphones.



Stereo/mono 3m extension lead with volume control
Connevans part no. X3.5ESVOL



Stereo/mono 3m extension lead with volume control
Connevans part no. *F387*

**If the answer is 'NO' to a headphone socket – go to options 2, 3 and 4...
...if the answer is 'YES' you can choose from the variations on option 1.**



1a. Using the 'T' pick-up on your hearing aid(s) with an inductive device

If your hearing aid has a 'T' position, then you can pick up inductive sound directly into your hearing aid. You will probably be familiar with the 'T' symbol seen in shops and halls etc. but you can also use an inductive device to hear your computer.

Pros & cons of inductive devices

Simple and inexpensive, this option works well with laptops or computers with flat TFT screens but conventional computer screens can cause interference to inductive signals so may not be ideal.



What equipment do you need?

If you have a 'T' position on your hearing aid then you will need a multiturn plastic or fabric neck loop, Music-link stereo inductive silhouette ear hooks or silent headphones.

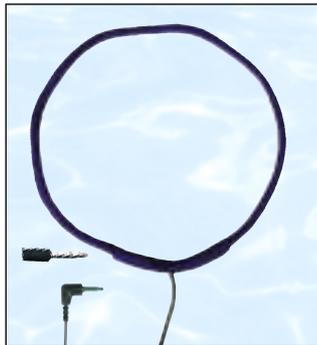
The neck loops provide a mono sound and the silhouette ear hooks or silent headphones stereo sound.



Multiturn plastic neck loop

Connevans part no. 95THINSB

These personal inductive mono neck loops can be worn under clothes without loss of performance and work equally well when used with mono or stereo equipment.



Fabric neck loop

Connevans part no. 95SH



Music-link stereo inductive silhouette earhooks

Connevans part no. 95MUSICL

For use with post aural hearing aids.



Silent headphones

Connevans part no. 95SILHS1

Provide an inductive stereo output for use with the hearing aid 'T' input but no actual sound.



Stereo 3.5mm extension lead

Connevans part no. *A121*



Stereo/mono 3m extension lead with volume control

Connevans part no. X3.5ESVOL



How does it all connect together?

The neck loop or other inductive device is plugged directly into headphone socket – wherever you found it!

Your hearing aid is on 'T' setting to pick up the signal from the inductive device.



1b. Stereo sound using the direct input facility on the hearing aids

Direct input allows hearing aid users to enjoy a stereo signal directly into their hearing aids. If your hearing aids are able to take direct input then the first thing you will need are the direct input shoes appropriate for your hearing aids.



Probably the easiest way to find the right shoe is to check in Section 2 of the Connevans Catalogue. The shoe fits directly onto the hearing aid and has a three-pin socket that can take a personal stereo direct input lead.

If you use only one hearing aid, look at option 1c.

Pros & cons of direct input

Direct input avoids the problem of interference from computer screens, lighting or other electrical equipment. It also has the benefit of a stereo signal. Although more expensive than an inductive device it can be well worth it for a clearer, full stereo result and, of course, can also be used for other equipment too. The personal stereo direct input leads are, as the name implies, originally designed for use with personal stereos however, as they can actually be used in any working 3.5mm headphone socket, they are ideal for use with computers as well as portable CD players, minidisks, keyboards etc.



What equipment do you need?

As well as the shoes for your hearing aids, you will need a personal stereo direct input lead. If your headphone socket is at the back of the computer, you may well need an extension lead as well. However, the advantage is not only that you will get the stereo signal from your computer but also that you will be able to use the leads and shoes to get a stereo signal from any audio equipment with a suitable stereo headphone socket.



Personal stereo direct input lead
Available in following lengths:

| Length | Part no. |
|----------|---------------|
| 600mm | DPV600 |
| 800mm | DPV800 |
| 1metre | DPV1M |
| 1.5metre | DPV1M5 |



Stereo 3.5mm extension lead
Connevans part no. ***A121***



Stereo/mono 3m extension lead with volume control
Connevans part no. **X3.5ESVOL**

See Connevans Catalogue Section 11 – TV, Video & Assistive Devices for all these items. These items can also be purchased online at our shopping website: www.DeafEquipment.co.uk



How does it all connect together?

The hearing aids fit into the direct input shoes and then the three pinned plugs of the direct input lead plug into the shoes.

The blue plug end of the lead either goes into the headphone socket of the computer or into the socket end of the extension lead which itself then plugs into the headphone socket.



Hearing aid(s)

Direct input shoe appropriate for aid

Personal stereo direct input lead



1c. Single hearing aid user using the direct input facility

Single hearing aid users cannot use the DPV lead as one half of the stereo sound will be lost (plus you will have a dangling end). Our solution for single direct input hearing aid users is a listening pod lead (which safely combines the two stereo channels) and a single CRM-220 direct input lead.

If your hearing aid is able to take direct input then the first thing you will need is the direct input shoe appropriate for your hearing aid. Probably the easiest way to find the right shoe is to check in Section 2 of the Connevans Catalogue. The shoe fits directly onto the hearing aid and has a three-pin socket that can take a personal stereo direct input lead.

If you use two hearing aids, look at option 1b.

Pros & cons of direct input for a single hearing aid

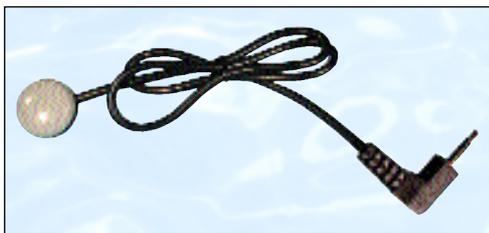
Direct input avoids the problem of interference from computer screens, lighting or other electrical equipment. Using only one direct input shoe does mean that you lose the benefit of a stereo signal although you can still use the equipment in any working 3.5mm headphone such as personal stereos, portable CD players, minidisks, keyboards etc.



What equipment do you need?

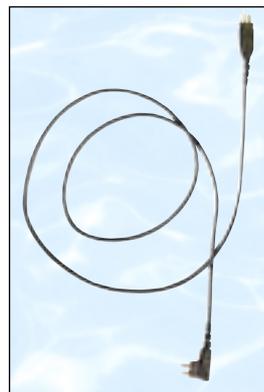
As well as a shoe for your hearing aid, you will need a personal stereo direct input lead. If your headphone socket is at the back of the computer, you may well need an extension lead as well.

Listening pod patch cable
3.5mm stereo plug to N.P. socket pod lead.



Available in three lengths:

| | | |
|-------------------|------------|----------|
| Connevans part no | 22079A10CM | 0.1metre |
| | 22079A50CM | 0.5metre |
| | 22079A1M | 1.0metre |



Single direct input lead
In various lengths

| | |
|--------------------|-------|
| Connevans part no. | |
| DS500 | 500mm |
| DS600 | 600mm |
| DS700 | 700mm |
| DS800 | 800mm |
| DS900 | 900mm |
| DS1M | 1m |

The personal stereo direct input leads can be found in the 'Listening for Pleasure' section 11 of the Connevans Catalogue. 3.5mm stereo extension leads are also available e.g. *A121A* which is a 3 metre or X3.5ESVOL 3.5mm 3 metre stereo/mono extension lead with inline volume control.

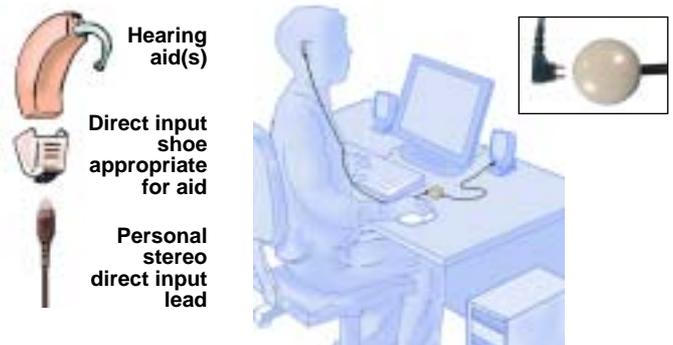
If you want to use headphones as well then you can use a socket doubler (*F387*, see page 2).



How does it all connect together?

The hearing aid fits into the direct input shoe and then the three pinned plug of the direct input lead plugs into the listening pod.

The other end of the lead either goes into the headphone socket of the computer or into the socket end of the extension lead which itself then plugs into the headphone socket.



Options 2, 3 & 4 – available when there is no suitable headphone socket.

If the answer was 'NO', because there is no suitable headphone socket, then please don't give up, there are still three other options to try.

2. Connecting to an amplifier unit which has a suitable headphone socket
3. Connecting to an auditory trainer, such as the Connevans ATU30
4. Connecting into a radio aid system, such as the Connevans fmGenie or CRM-220

These options allow you to connect to a low level output from the sound card normally used with external speaker/amplifier units. If you already have speaker/amplifier units connected then you can simply use the same connection socket and a doubler, otherwise a little trial and error will be required. The instructions with your computer sound card will indicate what socket does what, you need the stereo line level output – read your instruction book for your computer – you may even discover a headphone socket!

OPTION 2: Connecting to an amplifier unit which has a suitable headphone socket (eg hi-fi unit) – and using your hearing aids with a loop or direct input connections to listen.

If your computer does not have a suitable headphones drive, you can almost certainly connect it into your hi-fi amplifier and use the headphones drive on that. How to connect into your hi-fi system will be covered in the computer sound card instructions. Once you have got your amplifier connected you proceed just as if you were connecting straight into the computer headphones socket.



If you have problems working out the connections please phone your *computer supplier*. You may find that talking to your computer supplier about deafness, hearing aids and radio systems may just make life too complicated for the computer expert – so instead, simply ask “which output socket on the computer can I use to make a recording on a tape recorder?”.

Pros & cons of connecting to an amplifier unit

The pros are that you are using equipment that you already have. It is the Hi-fi system which acts as the amplifier for a headphone drive – you can also choose to have the sound from the computer coming from the hi-fi speakers, which may (or may not) be of benefit to you or to other users of the computer. An additional benefit is that you can use the same accessories to listen to CD's or radio in improved quality with your hearing aids.

The con is simply that we can't advise you on what connections are required, but if we had to guess you would require a 3.5mm plug for the computer and phono plugs for the Hi-fi (Connevans part no. *A121BA* which is a 5 metre 3.5mm stereo to phono plug lead).



OPTION 3: Connecting into an auditory trainer, such as the Connevans ATU30 – and using its headset to listen

Although auditory trainers are bi-aural they have mono sound inputs. So to be able to connect to a (two channel sound) computer it is necessary to have a special lead. Connevans offer a stereo to mono, computer to tutor microphone 1/4" input, connecting lead (part.no. 103045B). This lead is suitable for connecting both to a low level sound output from a sound card or the higher level of a headphone output.

Pros & cons of connecting to an ATU30

If you already have ATU30 equipment then this could be an ideal way to link to a computer.



What equipment do you need?



Computer to ATU30 lead – 1 metre
Connevans part no. 103045B



How does it all connect together?

The 3.5mm jack plug of the connecting lead plugs into the headphone or soundcard socket of the computer and the 6.3mm jack plug goes into the ATU30 tutor mic input.



OPTION 4: Connecting into a radio system and using your hearing aids to listen

Buying a radio aid system purely to listen to a computer would definitely be using a mallet to crack a nut – however, the enormous benefits of a radio system to a hearing aid user may well make it worth considering.

For those who already have a radio system, you *should also read the Connevans information sheet for your system: Connecting fmGenie's to computers (ref B0FMGCOMP) or CRM-220's to Computers (ref. B0220COMP). These are available to download from www.connevans.com or if you do not have access to the web, ask for a free Connevans information CD with your next Connevans order.*

Pros & cons of radio aid systems for hearing aid users

A radio microphone system is an excellent way to get the very best out of your hearing aid and can be used for many other reasons than connecting to a computer. A transmitter input adaptor is also required for connecting into a computer which could also be used with a TV to give high quality listening.

If you are interested in finding out more about radio aid systems, we suggest you look in Section 1 of the Connevans Catalogue or on www.connevans.com. You will also find full information on the fmGenie and CRM-220 systems on the website which you can read online or download to your computer.



fmGenie
radio
system



CRM-220
radio
system



In case you have trouble identifying different audio plugs, we have reproduced our handy visual guide from the Connevens Catalogue.

"I am afraid that I am not very technical and don't understand the names you use when talking about connecting things".

Jack plug 3.5mm – that's a small jack plug usually found on headsets for personal stereos.

Jack plug 1/4" (6.3mm) – that's a big jack plug often found used with school equipment.



Mono or stereo?

Look for the number of black bands on the plug... one for mono, two for stereo.



Jack plug 2.5mm right angle



Jack plug 3.5mm right angle

5 pin din – 180°



2 pin speaker din



Phono – that's a connector with a large round centre pin with claws around it. The sockets are often found on videos (audio out) and domestic hi-fi equipment.



SCART – that's a large rectangular connector with lots of slanted pins found only on television and video equipment.



XLR – 3 pin XLR connectors are commonly used for balanced line connection for both conventional and radio microphones.



A male connector is usually found on the microphone



MALE



FEMALE

www.connevens.com and www.DeafEquipment.co.uk

www.connevens.com – the information website for Connevens includes full online catalogue, downloadable info & instruction sheets

(Adobe Acrobat 5 or later is required to fully use this website)

www.DeafEquipment.co.uk – the e-commerce website for Connevens has all our products available for purchase online.

If you would like to be kept updated with notification of new products and other news from Connevens please send a blank email to update@connevens.com and we will keep you informed.

