Radio Aid Systems from Connevans

For children and young people with a hearing loss, listening in noisy and poor acoustic environments is particularly challenging. It is difficult, tiring and can have a significant impact on their learning and educational achievements. It has long been established that Radio Aids offer the best and most practical way of improving the signal-to-noise ratio and therefore speech intelligibility for deaf children.

For many years Connevans has been at the forefront of developing and promoting the use of radio aids. We are proud to have manufactured and supplied high quality radio aids to several generations of deaf young people and to have played our part in ensuring they have the opportunity to participate fully in school and to meet their potential. We continue to recommend and supply the latest in radio aid technology and be experts in this field.

How can a Radio Aid Help

In busy, noisy classrooms or when the teacher is more than an arm’s length away, hearing aid users may find that the background noise level is as loud as the teacher’s voice. In addition poor acoustic environments, particularly reverberant (echoey) classrooms, mean that understanding speech is particularly difficult and tiring. A radio aid greatly improves the user’s listening experience by delivering the sound they wish to hear directly to their hearing aids, unaffected by noise, distance and reverberation.

How is a Radio Aid used?

Radio aids work with the user’s hearing aid or cochlear implant processor. The user wears a receiver while a transmitter with a microphone is worn by the person speaking.

The system is wireless, can be worn discreetly and can be taken from room to room, or even used outdoors. When a radio aid is working well, the user should find that the teacher’s voice, at a distance in a noisy classroom will sound just as if they are standing close to them in a nice quiet space. With a radio aid, users no longer feel excluded from discussions or risk missing essential information. They are able to focus less of their energy on listening and more on learning and understanding.

Are Radio Aids suitable for everyone?

Anyone of any age who benefits from wearing their hearing aids or cochlear implant/s – particularly if they are able to understand speech without total reliance on lip reading – can benefit from using a radio aid.

Using a radio aid with headphones can also help people who have difficulty listening and concentrating in noisy situations, such as those with auditory processing disorder (APD).
Connevans offers a comprehensive range of Radio Aid systems

When you choose a radio aid from Connevans, you can be confident you will have the right solution for your particular needs and for the situations in which you wish to use it. Connevans are experts in the use, recommendation and supply of radio aid systems and we are here to help you decide which system will be best suited to you. Below we give an overview of the systems we offer but if you have any questions or queries, our Customer Services Team will be more than happy to help.

Phonak Roger – pages 30-46

We are very pleased to work closely with Phonak, world leaders in the field of hearing aid and wireless technology, to offer their Roger digital radio aid system. Roger offers excellent speech quality and a range of stylish transmitters. Designed to be simple to use, Roger transmitters and receivers are connected at the press of a button and there is no need to worry about changing radio channels.

Roger X receivers

Phonak universal ear level receivers are very small and discreet with high visual appeal. Integrated receivers are also available for most Phonak hearing aids and many cochlear implants.

Roger TouchScreen & PassMic transmitters

The natural choice for users in education is the Roger TouchScreen Mic transmitter, with its different automatic microphone characteristics when worn around the neck and conference mode when placed on a table. The clear display and menu structure makes it easy for teachers to check and manage the system. It can also be used in a MultiTalker Network with Pass-around Mics for group use, or integrated into a Phonak Dynamic Soundfield system.

Roger Select transmitter

The Roger Select transmitter can be worn around the neck or placed on a table for group/discussion use. Using multibeam technology to give directional sound pick up, the Select is ideal for use in restaurants or other places with background noise. The Roger Select also has Bluetooth connectivity for use with mobile phones.

Roger Pen and EasyPen transmitters

These Roger transmitters are designed with the needs of teenagers and adults in mind. The Roger EasyPen transmitter is very straightforward to use. Its microphone settings adjust automatically when used in one-to-one or group situations, making it a good choice for pupils in school working independently. The Roger Pen additionally offers Bluetooth connectivity and manual microphone settings and is popular with students in further and higher education.

Connevans fmGenie – pages 16-29

The fmGenie is designed and manufactured by us in Surrey. It has unrivalled sound quality, advanced user features and a superb range of accessories to support and extend system use.

The fmGenie is a multichannel system with very long battery life, LCD status display, excellent range and a Team Teaching facility.

Its reliability, durability and ease of management have long made it a popular choice in education, particularly for younger children in primary settings. It is also widely used by students at university and by adults in the workplace due to its superior sound quality.
Phonak Roger Radio Aid Systems

Phonak, well known for their hearing aids, have used their microelectronics and design resources to develop highly miniaturised radio aid systems. A Phonak Roger radio aid system opens up a whole new world of hearing.

The Phonak ear level receivers are ideally suited for responsible hearing aid users and offer a very cosmetically discreet system – the receiver simply plugs directly into a direct input shoe which in turn connects to the hearing aid.

Phonak 2.4GHz digital radio aid platform called Roger

Roger is a digital wireless technology – an alternative to fm. The Roger digital radio system operates in the 2.4GHz band, which is globally licence free, with intelligent adaptive protocols. The Roger digital protocol, unique to Phonak, has an end to end audio delay of less than 25ms. A nice feature of Roger is that the system is private and cannot be eavesdropped.

How does Roger sound?

Roger gives really good sound quality and provides an audio bandwidth signal up to 7300 Hz, with low acoustic delay, high internal signal-to-noise ratio and no noticeable distortion.

Roger transmitters:

Current Roger transmitters include the Roger Select, Pen, EasyPen, Clip-on Mic, Table Mic II, Pass-around Mic and the Touchscreen Mic – we will explain more about the different features of these transmitters later.

Roger ear level receivers:

The universal Roger X receivers are tiny and shaped like a cube – they connect to the hearing aid via a direct input shoe (see Section 2). Integrated receivers are also available for most Phonak hearing aids and many cochlear implant processors.

What are the benefits of Roger?

The Roger radio aid system sees a number of system improvements above traditional Phonak fm. The sound quality and speech recognition is improved and there is less chance of interference. Designed to be simple to use, Roger has one-button connectivity and you don’t need to worry about having users on the same fm channels so equipment management is easier.

Up to 10 Roger Select, Roger Pen, Roger EasyPen or Roger Clip-on Mic transmitters can be used together in an EqualTalker network, where all transmitters have the same priority – particularly good in group-work or social situations.

Roger Touchscreen and Pass-around Mic transmitter networks can include up to 35 transmitters and you can have either a Mixing network, an EqualTalker network or a Primary Talker network, where a primary transmitter will over-ride the others. This is great in a teaching scenario. With a Touchscreen Mic, you also have the option of creating a temporary SubNet where you can connect a user to a different Roger Touchscreen Mic transmitter for a private conversation or detailed explanation of a topic.

Also, the Roger Select, Pen, EasyPen and Touchscreen Mic transmitters have an automatic microphone function which conveniently switches from an individual speaker to a small group interaction mode, based on the orientation of the device allowing students and teachers to keep up with the ever-changing learning environments.

Visit www.connevans.info/roger for more details on Phonak Roger equipment.
Phonak Roger System Product Overview

Roger Transmitters

The Roger TouchScreen Mic is designed for the education customer – for use with 02 receivers and Phonak Dynamic SoundField systems.

Normally worn around the neck, the TouchScreen Mic has the same 3 automatic microphone modes as the Roger EasyPen & Roger Pen, as detailed above.

Around the neck – Use the lanyard (neck cord) and the Touchscreen will detect that it is being used vertically and will go into directional microphone mode. This will pick up the voice of the person wearing it and help filter out the background noise.

Conference style – Place Roger Touchscreen in the middle of a table to listen to a small group of people. The Touchscreen will automatically detect that it is lying down and its three microphones will segmentise and digitally concentrate in the direction of the person talking.

Roger Touchscreen Mics can initiate a MultiTalker or EqualTalker network of Roger Touchscreen Mic or Pass-around Mic transmitters.

Interview style – Select pointing mode, hold the Roger Touchscreen in your hand and point it towards the person you want to hear to reduce background noise, zooming in on the person speaking.

The Roger Pass-around Mic is a handheld microphone – for use with a TouchScreen Mic and 02 receivers.

The Pass-around Mic operates in a MultiTalker network with Roger Touchscreen transmitters and roger 02 receivers. Typically used for passing around for questions & group discussion with up to a maximum of 35 transmitters – please note that it cannot be used on its own.

The Roger Multimedia Hub – for use with 02 receivers.

The Roger Multimedia hub operates on its own or in a MultiTalker network with Roger Touchscreen mics or BaseStations. Used to integrate computer or other AV sound with the teacher’s voice or SoundField System.

The Roger Repeater – for use with 02 receivers.

The Roger Repeater works with Roger Touchscreen Mics, Pass-around Mics or BaseStations to extend the transmitter coverage area. The range of a Roger Touchscreen Mic to a Roger receiver is in the region of 15m, adequate for most rooms but sometimes insufficient for a large hall or gym – the solution is to add one or more Roger Repeaters. The Roger Repeater has a powerful aerial, giving it a range of 50m from the primary transmitter. All Roger receivers need to be within 15m of the Roger Repeater (or other Roger transmitter). The Roger Repeater can be battery or mains powered and is usually wall mounted.

The Roger WallPilot is a mains powered box, usually fitted near the room entrance, which allows 02 Roger receivers to automatically connect to the transmitter in use in the classroom or hall as they pass it.

The Roger BaseStation is a mains Roger transmitter for use with 02 receivers. It can be used in a network with Roger TouchScreen Mic and Pass-around mic transmitters as well as Roger Repeaters. It can also be used to rebroadcast the audio from sound systems to Roger Radio Aid users (see Section 14 Access for Visitors).

The Roger Digimaster X is a Roger Dynamic SoundField receiver that allows Roger TouchScreen Mics, Roger Pass-around transmitters and Roger Multimedia Hubs to be used with any existing audio amplification system. Please contact us for more information.

The Roger Table Mic II is designed for use in meetings by working adults – for use with 02 or 03 receivers.

Normally purchased as a pair with a remote control, two Table Mic II transmitters will operate automatically and seamlessly together in the often challenging situation of large and small meetings.

The nearest Table Mic selects the person who is talking and then switches automatically between the meeting participants when they talk.

More than two Roger Table Mic II transmitters can be connected in a network if required, for use in very large meeting configurations. The Table Mic II can also transmit multimedia sound e.g. computer or tablet.

Continued...
Roger Transmitters continued

The Roger Select is the latest Roger radio aid transmitter incorporating digital multi beam (directional) microphone technology and is very effective for small group discussions – for use with 02 or 03 receivers.

The Select transmitter is an intelligent product which detects which situation you are in and adapts its microphone settings automatically to provide you with the best speech understanding possible.

The 2 different automatic microphone options are:

- **Around the neck** – Use the lanyard, or clothes clip, and the Select will detect that it is being used vertically and will go into **directional microphone mode**. This will pick up the voice of the person wearing it and help filter out the background noise.

- **Conference style** – Place the Roger Select in the middle of a table to listen to a small group of people. The Select will automatically use its multibeam technology to concentrate sound pick-up in the direction of the person talking. In noisy situations such as restaurants you can manually select the direction of the person you want to hear.

You can connect audio devices such as an iPod or tablet to the transmitter directly or via the docking station and it can also be connected to a TV.

The Roger Select also has a Bluetooth connection for hands free mobile phone calls.

Up to 10 Roger Pen, EasyPen, Clip-on Mic, Select or Table Mic transmitters can be used in a network for group use – subject to limitations, see user guide/talk to us.

The Roger Pen transmitter is an innovative radio aid transmitter designed for use by teenagers and adults, offering a choice of omni and directional microphone pickup characteristics – for use with 02 or 03 receivers.

The Pen transmitter detects which situation you are in and adapts its microphone settings automatically to provide you with the best speech understanding possible.

The 3 different automatic microphone options are:

- **Around the neck** – Use the lanyard (neck cord) and the Pen will detect that it is being used vertically and will go into **directional microphone mode**. This will pick up the voice of the person wearing it and help filter out the background noise.

- **Conference style** – Place Roger Pen in the middle of a table to listen to a small group of people. The Pen will automatically detect that it is lying down and will set the microphones to an **omnidirectional setting** where it will pick up sound from all around it. A carefully positioned weight inside the transmitter, ensures that the microphones are always facing upwards.

- **Interview style** – Hold the Roger Pen in your hand and point it towards the person you want to hear and it will switch to directional mode to reduce background noise and zoom in on the person speaking.

There are times when you might want to over-ride the automatic microphone selection and the Pen allows you to manually select a microphone mode if you want to.

You can connect audio devices such as an iPod or tablet to the transmitter directly or via the docking station and it can also be connected to a TV.

The Roger Pen also has a Bluetooth connection for hands free mobile phone calls.

Up to 10 Roger Pen, EasyPen, Clip-on Mic, Select or Table Mic transmitters can be used in a network for group use – subject to limitations, see user guide/talk to us.

The Roger EasyPen transmitter has all the features of the Roger Pen (as explained above) with the exception of the Bluetooth mobile phone facility and the manual microphone select function – for use with 02 or 03 receivers.

As with the Pen, the EasyPen has a choice of three colours.

By the way – one of the only things a Roger Pen or EasyPen can’t do is write!

The Roger Clip-On Mic is designed for the home domestic market – for use with 02 or 03 receivers. The Roger Clip-On Mic is a very small and easy-to-wear transmitter.

It can be used on its own or with Roger Selects, Pens/EasyPens or Table Mics. It has a directional microphone and clips onto a shirt or collar.
Roger Receivers

Roger X universal receivers have the usual 3 pin europlug connector and are designed for use with virtually all direct input hearing aids. Roger receivers have no buttons and there is no programming software; so they are very easy to use. They do not lose their network association when power is lost, e.g. when turning a hearing aid off or changing a battery.

When connected to a hearing aid but not in use, Roger receivers switch to a standby mode to save battery life. However, as ear level receivers take their power from the hearing aid, you will need to fit a new battery more often than usual.

Integrated Roger receivers are available, with a choice of colours, for most Phonak BTE hearing aid models, Cochlear Nucleus 5, 6 & 7, Advanced Bionics Naida CI Q70/Q90 and MED-EL Sonnet processors. They are designed to become part of the hearing aid and be unobtrusive.

Education authority customers tend to purchase Roger X universal receivers rather than integrated receivers because children have their hearing instruments re-assessed on an ongoing basis and integrated receivers are specific to particular hearing aid models.

Roger MyLink receivers are easy to use inductive neckloop receivers. The neck strap functions as the neck loop so that it can be used with any hearing aid, cochlear implant or bone anchored hearing aid that has a loop program (‘T’). A really nice option if your hearing aid does not have a direct input facility. A MyLink can also be used with headphones for non-hearing aid wearers. Ideal for use as tourguide and translation systems — see page 246 for more information.

Roger Focus receivers are discreet behind-the-ear Roger receivers for those who need help focusing on sound such as the teacher’s voice. They are used by people who don’t have hearing aids, but who struggle to filter out distracting background noise.

Available in 17 fun colours and particularly good for children who have autism spectrum disorder (ASD) or auditory processing disorder (APD).

You will see later that there are two types of most styles of Roger receivers: type 02 & type 03. Both have exactly the same range and sound quality. They are the same size and look the same, although if you look on the base beside the 3 pin plug it will be labelled (02) or (03).

In broad terms, 02 receivers are the advised choice for use in education and can be used with any Roger transmitter including Roger dynamic soundfield systems. 03 receivers are the suggested choice for the adult market and for use by those working independently with Roger Select, Roger Pen, EasyPen, Clip-on Mic and Table Mic transmitters.

There is a more detailed explanation about 02 and 03 Roger receivers and what will work with what at www.connevans.info/0203

Roger inspiro Technical Info

An established inspiro feature (also for Touchscreen mics) is the MultiTalker network with multiple inspiro, Touchscreen or DynaMic/Pass-around transmitters working together. What you may not have known is that 2.4GHz has always been used for the MultiTalker network and likewise for the Phonak Dynamic SoundField.

The Roger system works using an upgraded version of the 2.4GHz radio protocol that is already in an old inspiro premium transmitter — which is why you can upgrade it — and is in the 2.4GHz ISM (Industry, Science and Medical) radio band.

The audio bandwidth is 7.3KHz and the end-to-end audio delay is well below 25 ms.

Roger audio signals are digitized and packaged in very short (160 μs) bursts of codes and broadcast 3 times in different channels between 2.4000 and 2.4835 GHz. If the first is not received then the second is looked for etc. Digital codes inform receivers which signals are for them and which are not, ensuring privacy for the user. Roger systems monitor continuously which channels are free and adaptively hop around channels occupied by other systems at 2.4 GHz. Overall Roger equipment has a very resilient & secure radio protocol.

The power consumption of a Roger X receiver, when it is active, is 3.2 mA, almost the same as an MLxi.