Product portfolio brochure

Version 2021

GN Making Life Sound Better

Connect to a life without limitation

No one likes being held back, life is lived best when it’s a natural, effortless flow.

Sadly, in today’s modern world, the technology that’s supposed to make people’s lives easier can be impersonal, complicated and confusing, with products and processes built for the masses, while often ignoring the wants and needs of the individual. These compromises can become frustrating roadblocks that restrict people with hearing loss from living life on their own terms.

At ReSound, we take anything that holds people back to heart. From one hearing professional to another, we understand how hearing loss can limit people’s ability and confidence to connect with their surroundings – even with friends and family.

A person’s hearing is as unique as a fingerprint, which is why our strong legacy of advancing lives through technical innovations has one focus: the individual. We take hearing care personally and go above and beyond the norm to ensure that our intuitive, cutting-edge solutions are interconnected and adapt organically to the person and their world, so they can hear and live as nature intended, connected and contented.

As a hearing care professional wanting the best for your clients and business, this is what we can promise you:

- ReSound is your vital hearing care partner that will go the extra mile to support the ambitions of you and your clients.
- We can confidently say this, because after more than 150 years of making life sound better, no one better understands hearing and the human ear.
- ReSound is technology that is inspired by and made for the user, integrating seamlessly to provide an organic and individual hearing experience – and a life without limitations.

Contents

Portfolio overview

Families			CIC-W 10A	ITC 312	MIH-S/MIH 10 / 312	ITE 13	RIE 61 Li-ion (RHI)	RIE 61 312	RIE 62 13	BTE 67 312	BTE 77 13	BTE 88 13	BTE 95 675
PREMIUM RIE FAMILY	★★★	ReSound ONE 9											
	★★★	ReSound ONE 7											
	★★★	ReSound ONE 5*											
ADVANCED FULL FAMILY	★★★	ReSound LiNX Quattro 9											
	★★★	ReSound LiNX Quattro 7											
	★★	ReSound LiNX Quattro 5											
ADVANCED SP FAMILY	★★★	ReSound ENZO Q 9											
	★★★	ReSound ENZO Q 7											
	★★★	ReSound ENZO Q 5											
ESSENTIAL FULL AND SP FAMILY	★★★	ReSound Key 4											
	★★	ReSound Key 3**											
	★	ReSound Key 2**											

* M&RIE is unavailable
** RIE 61 rechargeable model is unavailable.

Features

Wireless hearing aids
Uses 2.4 GHz technology for crystal clear sound, stereo streaming, no neckworn device, streaming at least 7 metres.

Direct audio streaming
Direct audio streaming to iOS and Android™ devices.
Unavailable in RS Key 2.

Tinnitus
Comprehensive tinnitus management solution with built-in Tinnitus Sound Generator.

Smart Hearing Alliance
Smart bimodal fitting with compatible Cohlear™ devices.
Unavailable in RS Key 2.

Chargers

ReSound ONE Premium charger

ReSound ONE Standard charger

ReSound LiNX Quattro and ReSound Key Premium and Desktop chargers

Wireless accessories

ReSound Micro Mic

ReSound Multi Mic

ReSound TV Streamer 2

ReSound Phone Clip +

ReSound Remote Control

ReSound Remote Control 2

Apps

ReSound Smart 3D™

ReSound Smart Control™

ReSound Relief™

Download on the App Store

GET IT ON Google Play

Hearing aids

Taking the big step to go and see a hearing care professional is personal and expectations are high. Likewise, having the responsibility of helping someone's hearing and fitting them with a hearing aid that is life-changing is equally as personal and also professionally fulfilling.

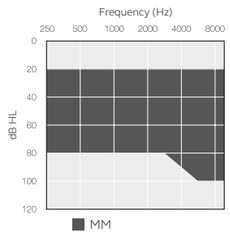
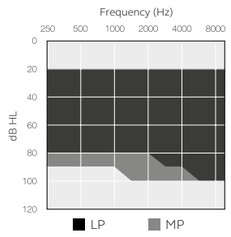
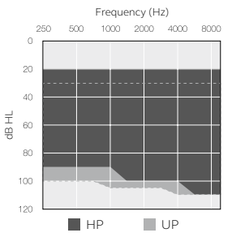
First impressions count, and if a great relationship is established from the start it can continue for years, with a loyalty that pays dividends for you and your client. Because you both want the best.

ReSound is the premium hearing care solution for people not wanting to compromise on hearing, that connects them to their world without limitations.

We offer a variety of discreet ReSound models in a selection of classic and natural colours to match your client's hearing profile and style preferences. Aesthetically attractive, powered by ground-breaking sound technology, robust enough to meet modern needs and lifestyles, and individualized to make each user feel that their hearing aids were created just for them.

Your clients will be proud to own a ReSound and you will be proud to offer it to them.

ReSound ONE

Form factors			
Model	RIE 61 (RHI)	RIE 61	RIE 62
Price points	9, 7, 5	9, 7, 5	9, 7, 5
Fitting range			
Power levels *	MM / LP / MP / HP / UP	MM / LP / MP / HP / UP	MM / LP / MP / HP / UP
Battery size	Lithium-ion rechargeable	312	13
Full-on gain on ear simulator (IEC 118-0)	63 / 63 / 69 / 75 / 83	63 / 63 / 69 / 75 / 83	63 / 63 / 69 / 75 / 83
Maximum output on ear simulator (IEC 118-0)	124 / 123 / 126 / 131 / 138	124 / 123 / 126 / 131 / 138	124 / 123 / 126 / 131 / 138
Dual microphone	•	•	•
Programmable push button	•	•	
Multifunctioning push button			•
Push button			
Volume control			
Telecoil			•
Direct audio input (DAI)			
e2e communication	•	•	•
Compatibility with wireless accessories	•	•	•
Direct audio streaming from iOS devices	•	•	•
Direct audio streaming from Android devices	•	•	•
ReSound Control app (Phone Clip+ is required)	•	•	•
ReSound Smart 3D app	•	•	•
iSolate nanotech coating	•	•	•
IP rating	IP68	IP68	IP68

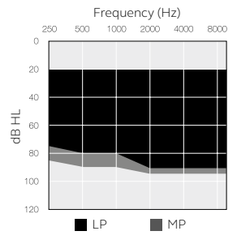
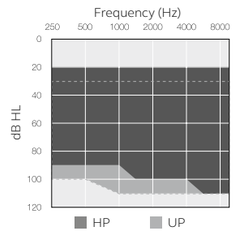
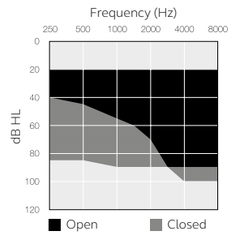
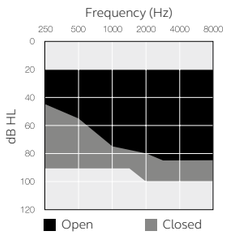
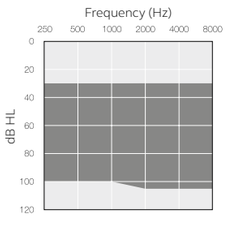
* Price point 5 is not compatible with MM receiver

SURE FIT 3 RECEIVERS	
M&RIE	
MM	
Standard (STD) receivers	
LP	
MP	
HP	
UP	

DOMES SELECTIONS			
Open	 S	 M	 L
Power	 S	 M	 L
Closed	 S	 M	 L
Tulip			

SPORT LOCKS				
Available for	MM	LP	MP	HP

ReSound LiNX Quattro

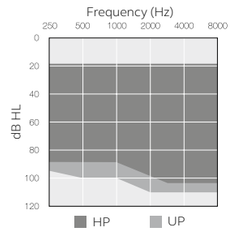
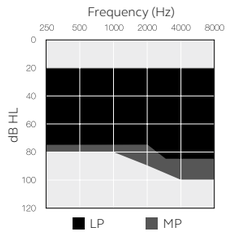
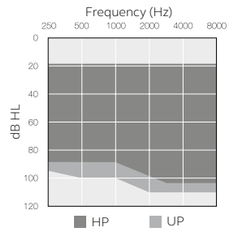
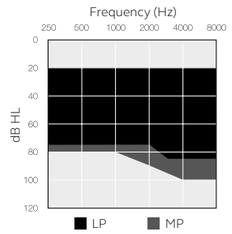
Form factors							
Model	RIE 61	RIE 61	RIE 62	RIE 62	BTE 67	BTE 77	BTE 88
Price points	9, 7, 5	9, 7, 5	9, 7, 5	9, 7, 5	9, 7, 5	9, 7, 5	9, 7, 5
Fitting range							
Power levels	LP / MP / HP / UP	LP / MP / HP / UP	LP / MP / HP / UP	LP / MP / HP / UP			
Battery size	Lithium-ion rechargeable	312	13	13	312	13	13
Full-on gain on ear simulator (IEC 118-0)	62 / 67 / 74 / 82	62 / 67 / 74 / 82	62 / 67 / 74 / 82	62 / 67 / 74 / 82	65	66	74
Maximum output on ear simulator (IEC 118-0)	123 / 125 / 129 / 136	123 / 125 / 129 / 136	123 / 125 / 129 / 136	123 / 125 / 129 / 136	130	134	141
Dual microphone	•	•	•	•	•	•	•
Programmable push button	•	•			•		
Multifunctioning push button			•	•			
Push button						•	•
Volume control						•	•
Telecoil				•	•	•	•
Direct audio input (DAI)						•	•
e2e communication	•	•	•	•	•	•	•
Compatibility with wireless accessories	•	•	•	•	•	•	•
Direct audio streaming from iOS devices	•	•	•	•	•	•	•
DDirect audio streaming from Android devices	•	•	•	•	•	•	•
ReSound Control app (Phone Clip+ is required)	•	•	•	•	•	•	•
ReSound Smart 3D app	•	•	•	•	•	•	•
iSolate nanotech coating	•	•	•	•	•	•	•
IP rating	IP68	IP68	IP68	IP68	IP68	IP68	IP68

DOMES SELECTIONS			
Open	 S	 M	 L
Power	 S	 M	 L
Closed	 S	 M	 L
Tulip			

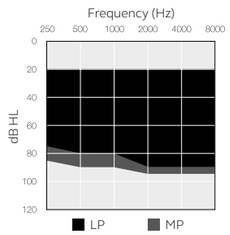
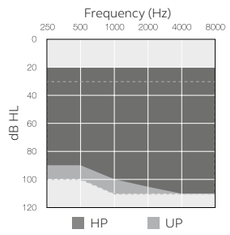
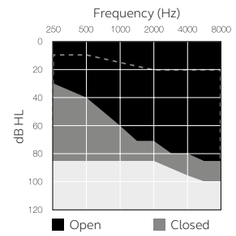
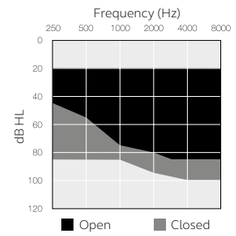
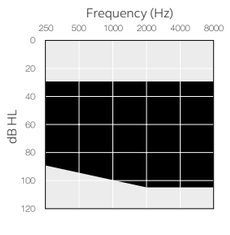
SURE FIT 2C RECEIVERS	
LP	
MP	
HP	
UP	

SPORT LOCKS			
Available for	LP	MP	HP

ReSound LiNX Quattro

Form factors				
Model	CIC-W	ITC	MIH	ITE
Price points	9, 7, 5	9, 7, 5	9, 7, 5	9, 7, 5
Fitting range				
Power levels	LP / MP / HP / UP	LP / MP / HP / UP	MP / HP / UP	MP / HP / UP
Battery size	10	312	312 / 13	13
Full-on gain on ear simulator (IEC 118-0)	49 / 59 / 69 / 78	49 / 59 / 69 / 78	59 / 69 / 78	59 / 69 / 78
Maximum output on ear simulator (IEC 118-0)	124 / 128 / 130 / 137	124 / 128 / 130 / 137	128 / 130 / 137	128 / 130 / 137
Dual microphone		•	•	•
Programmable push button				
Multifunctioning push button				
Push button	Optional	Optional	Optional	Optional
Volume control		Optional	Optional	Optional
Telecoil		Optional	Optional	Optional
Direct audio input (DAI)				
e2e communication	•		•	•
Compatibility with wireless accessories	•	•	•	•
Direct audio streaming from iOS devices	•	•	•	•
Direct audio streaming from Android devices	•	•	•	•
ReSound Control app (Phone Clip+ is required)	•	•	•	•
ReSound Smart 3D app	•	•	•	•
iSolate nanotech coating	•	•	•	•

ReSound LiNX 3D

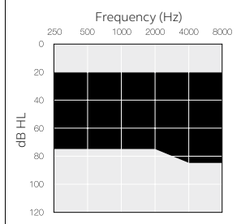
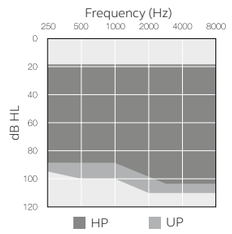
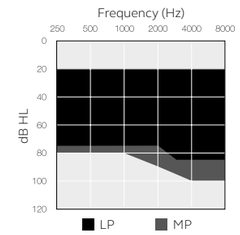
Form factors					
Model	RIE 61	RIE 62	BTE 67	BTE 77	BTE 88
Price points	9, 7, 5	9, 7, 5	9, 7, 5	9, 7, 5	9, 7, 5
Fitting range					
Power levels	LP / MP / HP / UP	LP / MP / HP / UP			
Battery size	312	13	312	13	13
Full-on gain on ear simulator (IEC 118-0)	61 / 67 / 74 / 82	61 / 67 / 74 / 82	65	66	74
Maximum output on ear simulator (IEC 118-0)	123 / 125 / 131 / 137	123 / 125 / 131 / 137	130	134	140
Dual microphone	•	•	•	•	•
Programmable push button	•		•		
Multifunctioning push button		•			
Push button				•	•
Volume control				•	•
Telecoil		•	•	•	•
Direct audio input (DAI)		•		•	•
e2e communication	•	•	•	•	•
Compatibility with wireless accessories	•	•	•	•	•
Direct audio streaming from iOS devices	•	•	•	•	•
Direct audio streaming from Android devices	•	•	•	•	•
ReSound Control app (Phone Clip+ is required)	•	•	•	•	•
ReSound Smart 3D app	•	•	•	•	•
iSolate nanotech coating	•	•	•	•	•
IP rating	IP58	IP58	IP58	IP58	IP58

DOMES SELECTIONS			
Open	 S	 M	 L
Power	 S	 M	 L
Closed	 S	 M	 L
Tulip			

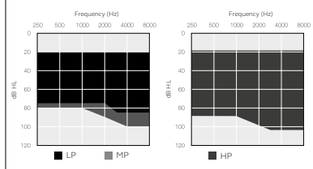
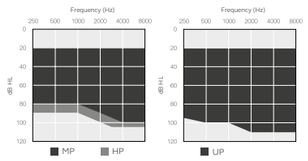
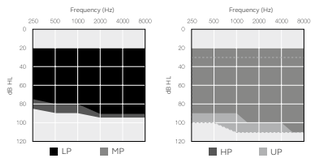
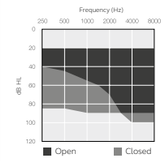
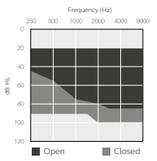
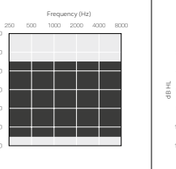
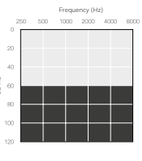
SURE FIT 2C RECEIVERS	
LP	
MP	
HP	
UP	

SPORT LOCKS			
Available for	LP	MP	HP

ReSound LiNX 3D

Form factors						
Model	IIC	CIC	ITC	MIH-S	MIH	ITE
Price points	9, 7, 5	9, 7, 5	9, 7, 5	9, 7, 5	9, 7, 5	9, 7, 5
Fitting range						
Power levels	LP	LP / MP / HP / UP	LP / MP / HP / UP	LP / MP / HP / UP	LP / MP / HP / UP	MP / HP / UP
Battery size	10	10	312	10	312 / 13	312 / 13
Full-on gain on ear simulator (IEC 118-0)	49	49 / 59 / 69 / 79	49 / 59 / 69 / 79	49 / 59 / 69 / 79	59 / 69 / 79	59 / 69 / 79
Maximum output on ear simulator (IEC 118-0)	124	124 / 127 / 130 / 137	124 / 127 / 130 / 137	124 / 127 / 130 / 137	127 / 130 / 137	127 / 130 / 137
Dual microphone					•	•
Programmable push button						
Multifunctioning push button						
Push button		Optional	Optional	Optional	Optional	Optional
Volume control			Optional	Optional	Optional	Optional
Telecoil			Optional		Optional	Optional
Direct audio input (DAI)						
Non-wireless programming	IIC Prg. cable	CS44 + CS53 OR CS63 + Flex Strip	CS44 + CS53 OR CS63 + Flex Strip	CS44 + CS53 OR CS63 + Flex Strip	CS44 + CS53 OR CS63 + Flex Strip	CS44 + CS53 OR CS63 + Flex Strip
Wireless programming			Noahlink Wireless		Noahlink Wireless	Noahlink Wireless
e2e communication					•	•
Compatibility with wireless accessories			•		•	•
Direct audio streaming from iOS devices			•		•	•
Direct audio streaming from Android devices			•		•	•
ReSound Control app (Phone Clip+ is required)			•		•	•
ReSound Smart 3D app			•		•	•
iSolate nanotech coating	•	•	•	•	•	•

ReSound Key

Form factors										
Model	CIC-W	ITC	ITE	RIE 61	RIE 61	RIE 62	BTE 67	BTE 77	BTE 88	SP BTE 98
Price points	4, 3	4, 3, 2	4, 3, 2	4	4, 3, 2	4, 3, 2	4, 3, 2	4, 3, 2	4, 3, 2	4, 3, 2
Fitting range										
Power levels	LP / MP / HP	MP / HP / UP	MP / HP / UP	LP / MP / HP / UP	LP / MP / HP / UP	LP / MP / HP / UP				
Battery size	10	312	13	Lithium-ion rechargeable	312	13	312	13	13	675
Full-on gain on ear simulator (IEC 118-0)	49 / 59 / 69	59 / 69 / 78	59 / 69 / 78	62 / 67 / 74 / 82	62 / 67 / 74 / 82	62 / 67 / 74 / 82	65	66	80	86
Maximum output on ear simulator (IEC 118-0)	124 / 128 / 130	128 / 130 / 137	127 / 130 / 137	123 / 125 / 129 / 136	123 / 125 / 129 / 136	123 / 125 / 129 / 136	130	134	141	144
Dual microphone		•	•	•	•	•	•	•	•	•
Programmable push button				•	•					
Multifunctioning push button						•				
Push button	Optional	Optional	Optional				•	•	•	•
Volume control	Optional	Optional	Optional					•	•	•
Telecoil		Optional	Optional			•	•	•	•	•
Direct audio input (DAI)		Optional	Optional			•		•	•	•
e2e communication	•		•[1]	•	•[1]	•[1]	•[1]	•[1]	•[1]	•[1]
Compatibility with wireless accessories	•	•	•	•	•	•	•	•	•	•
Direct audio streaming from iOS devices	•	•[1]	•[1]	•[1]	•[1]	•[1]	•[1]	•[1]	•[1]	•[1]
Direct audio streaming from Android devices	•	•[1]	•[1]	•	•[1]	•[1]	•[1]	•[1]	•[1]	•[1]
ReSound Control app (Phone Clip+ is required)	•	•	•	•	•	•	•	•	•	•
ReSound Smart 3D app	•	•	•	•	•	•	•	•	•	•
iSolate Nanotech	•	•	•	IP68	IP68	IP68	IP68	IP68	IP68	IP68

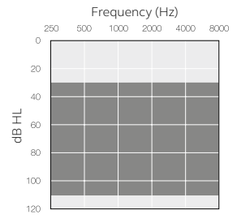
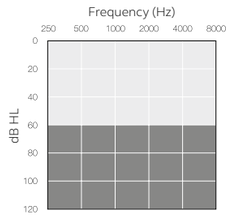
•[1]: Not available for ReSound Key 2

DOMES SELECTIONS			
Open	 S	 M	 L
Power	 S	 M	 L
Closed	 S	 M	 L
Tulip			

SURE FIT 2C RECEIVERS	
LP	
MP	
HP	
UP	

SPORT LOCKS			
Available for	LP	MP	HP

ReSound ENZO Q

	ReSound ENZO Q	
Form factors		
Model	BTE 88	SP BTE 98
Price points	9, 7, 5	9, 7, 5
Fitting range		
Battery size	13	675
Full-on gain on ear simulator (IEC 118-0)	80	86
Maximum output on ear simulator (IEC 118-0)	141	144
Dual microphone	•	•
Programmable push button		
Multifunctioning push button		
Push button	•	•
Volume control	•	•
Telecoil	•	•
Direct audio input (DAI)	•	•
e2e communication	•	•
Compatibility with wireless accessories	•	•
Direct audio streaming from iOS devices	•	•
Direct audio streaming from Android devices	•	•
ReSound Control app (Phone Clip+ is required)	•	•
ReSound Smart 3D app	•	•
iSolate Nanotech coating	•	•
IP rating	IP68	IP68

ReSound ONE

RIE

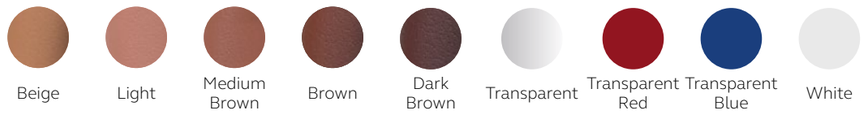
ReSound LiNX Quattro / ReSound LiNX 3D

BTE / RIE

Faceplate

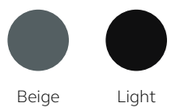
Customs

Shell

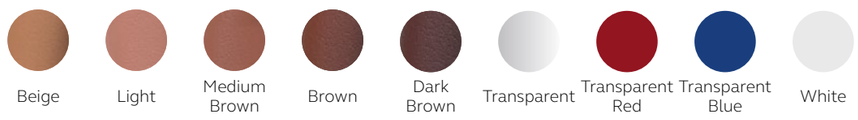


Faceplate

IIC
(only for ReSound LiNX 3D)



Shell



ReSound ENZO Q

BTE

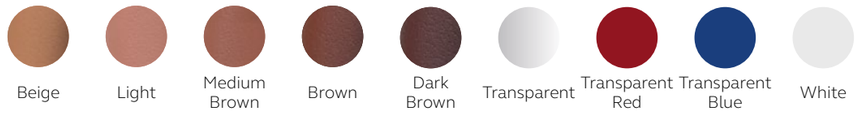
ReSound Key

RIE/ BTE

Faceplate

Customs

Shell



Unmatched rechargeability

ReSound offers an industry-leading rechargeable solution for ReSound ONE, ReSound LiNX Quattro. and ReSound Key.

ReSound ONE
For added flexibility, two different charger options serve as stylish, portable and protective cases, ideal for travelling and storage for the model RIE 61-DRWC.

Premium Charger
Includes an onboard battery for up to three days of on-the-go portable charging, without the need for a power outlet.

Standard Charger
Gives clients all the power they need in a simple, timeless design.

TECHNICAL DATA	PREMIUM CHARGER	STANDARD CHARGER
Dimensions	99.4 x 35 x 67.5 mm / 3.9 x 1.4 x 2.7”	100.2 mm x 42 mm x 54.8 mm / 3.9 x 1.7 x 2.2"
Weight	145 gram / 5.1 oz	95 gram / 3.3 oz
Power Supply	USB	USB
Internal Power Source	Rechargeable Lithium Ion battery, 3.7 V, 2600 mAh	N/A
Charging time for internal lithium ion battery in Charger	Max 3,5 hours, depending on initial state of the battery	N/A
Battery life (fully charged, not connected to main power)	Min. 3 full charges of 2 hearing instruments, Without hearing instruments: 12 months	N/A
Charging time for Hearing Instrument	Maximum 3 hours, depending on initial state of the battery	Maximum 3 hours, depending on initial state of the battery
Wireless frequency between Hearing Instrument and Charger	2.4 GHz and 333 kHz	2.4 GHz and 333 kHz
ESD tolerance	According IEC 61000-4-2 Electrostatic discharge immunity test standard	According IEC 61000-4-2 Electrostatic discharge immunity test standard
Operating & Charging temperature	+ 5 °C to + 40 °C at a relative humidity range of 15 % to 90 %, non-condensing	+ 5 °C to + 40 °C at a relative humidity range of 15 % to 90 %, non-condensing
Storage temperature for charger and Hearing Instrument	– 25 °C to + 5 °C, + 5 °C to + 35 °C at a relative humidity up to 90 %, non-condensing, > 35 °C to 70 °C at a water vapour pressure up to 50 hPa	– 25 °C to + 5 °C, + 5 °C to + 35 °C at a relative humidity up to 90 %, non-condensing, > 35 °C to 70 °C at a water vapour pressure up to 50 hPa

ReSound LiNX Quattro and ReSound Key
This portable charging case and desktop charger are designed for the ReSound LiNX Quattro 9, 7 and 5 and ReSound Key 4 RIE 61-DRWC. It provides the user with a complete rechargeable solution.

Premium Charger

Desktop Charger

TECHNICAL DATA	REMIUM CHARGER	DESKTOP CHARGER
Dimensions	99.4 x 35 x 67.5 mm / 3,9 x 1.4 x 2.7 ”	82 x 36 x 46 mm / 3.2 x 1.4 x 1.8"
Weight	145 g / 5.1 oz	82 g / 2.9 oz
Power supply	Rechargeable Lithium Ion battery	USB power supply, 5 V
Power connector	USB	N/A
Power source	3.7 V, 2600 mAh	N/A
Charging time for internal lithium ion battery in charger	Max 3.5 hours, depending on initial state of the battery	N/A
Battery life (fully charged, not connected to mains power)	Min. 3 full charges of 2 hearing aids, Without hearing aids: 12 months	< 40 °C (104F): 3 hours, depending on initial state of the battery
Charging time for hearing aids	Maximum 3 hours, depending on initial state of the battery	N/A
Wireless frequency communication between hearing aid and charger	2.4 GHz	2.4 GHz and 333 kHz
Wireless charging frequency	267 kHz and 333 kHz.	N/A
ESD tolerance	According IEC 61000-4-2 Electrostatic discharge immunity test standard	N/A
Operating & charging temperature range	0 to 40 ºC / 32 to 104 ºF	– 25 °C (-13F) to + 5 °C (41F), + 5 °C (41F) to + 35 °C (95F) at a relative humidity up to 90%, non-condensing, > 35 °C (95F) to 70 °C (158F) at a water vapour pressure up to 50 hPa
Storage temperature for charger and Hearing aids	-20 to 45 ºC / -4 to 113 ºF	N/A

Getting it right

We want you to be confident about choosing a ReSound hearing aid. So in addition to best-in-class audiology benefits, our devices should be robust and reliable.

Miniaturization

It's an enormous undertaking to design these tiny computers. We craft sophisticated electronics into a hearing aid roughly the size of an almond. The plastics, circuitry, processing chips, and electronics all need to deliver outstanding performance – and because of the miniature design, there's no room for error.

The human factor

Hearing aids are exposed daily to perspiration, oil, and chemicals from products like perfume and hairspray. And nobody's perfect; we drop them or forget to take them off in the shower. Almost anything can happen to a hearing aid, and we want it to keep on working.

It takes years to develop a hearing aid, and testing is an important part of development to ensure we get it right – and to ensure we keep getting better.

Sourcing components

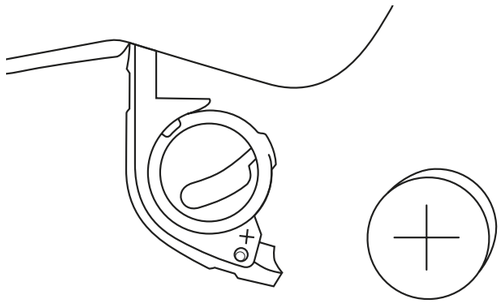
Our supplying partners certify that each component's specification is met. But when we receive components, we test them again. We need, among other things, uniform materials, the ability to withstand temperature and exposure to chemicals, perfectly finished edges, and no cracks or notches. Here are some of the component tests we perform.

UV Test

Some plastics are particularly sensitive to UV light. They change color or become fragile when exposed to natural light. So we test all plastic materials before they are allowed into our product development.

Wear-and-tear test

We test components that are most prone to wear out in order to evaluate their robustness. For example, the program switches, volume controls and battery doors are pressed, opened and closed thousands of times under controlled conditions.



Protection

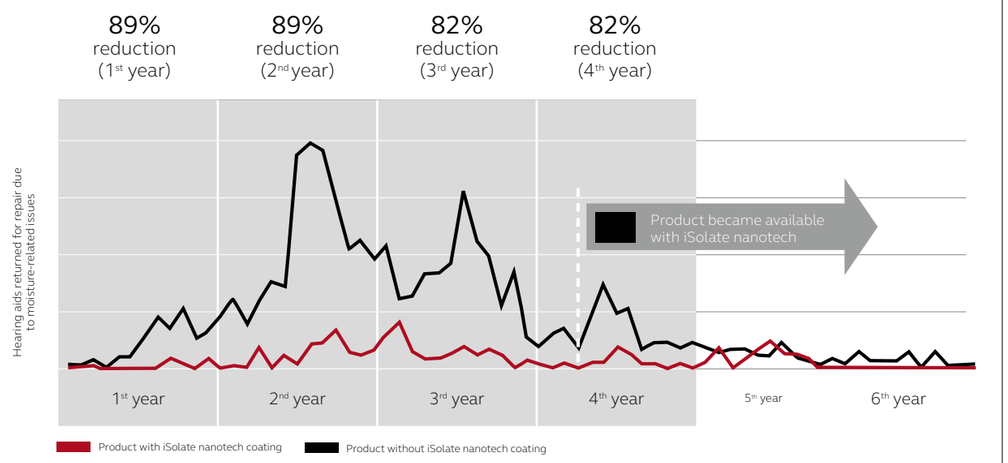
Skin is a human organ that protects us from harm by creating a barrier to the outside world. As it renews, dead cells slough off; skin creates lubricants to protect itself; it grows hairs and it sweats. It's a brilliant mechanism, but it is a hostile environment for hearing aids. So just as we need skin to protect our bodies from harm, hearing aids need a barrier between the electronics and human contact.

We address this with a multi-faceted approach, starting with the construction of the plastics around the device. We also use filters and foam as barriers. Every barrier we construct needs to be carefully tested so it doesn't negatively affect the acoustical performance of the hearing aid.

iSolate nanotech

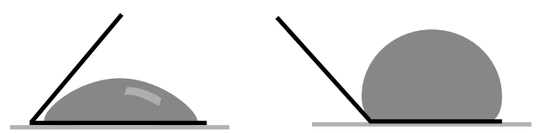
One of the best known barriers in the hearing aid industry is nanocoating. Long used in the clothing industry, nanotech pores are so small that water droplets can't get in, but water vapor – and acoustical transmission – can get out. ReSound uses iSolate™ nanotech. We apply this polymer coating with a specially developed vacuum process so the coating penetrates into even the smallest openings. The final coating is a thousand times thinner than the diameter of a human hair. We coat outside casings, but even more importantly, we coat every single component inside as well. Every product in the ReSound portfolio – regardless of price class – is iSolate nanotech coated.

80% Reduction in moisture-related repairs thanks to iSolate nanotech



Total test size: ca. 10.000 units

A contact angle of 90° or more will create a hydrophobic surface, creating liquid repellency.



Protection continued

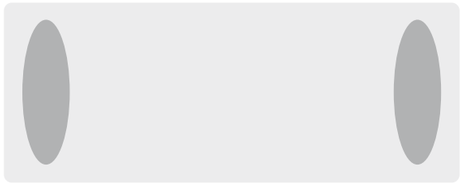
Water and dust resistance – IP58/IP68

The IEC60529 IP test system is intended to rate the degree of protection provided by enclosures for electrical equipment under normal conditions of use. The hearing aid industry has adopted this test standard with slight modifications to suggest the robustness of hearing aids to the effects of exposure to dust and water. The industry generally excludes hearing aid batteries from the hearing aids' 'electronic system.' (Zinc-Air batteries rarely survive immersion in water.)
The IP test is not a legal requirement nor a certification. It is a one-time test per model of a newly manufactured device. It does not predict how well the hearing aid will perform over time, and is therefore only one of many tests we conduct.

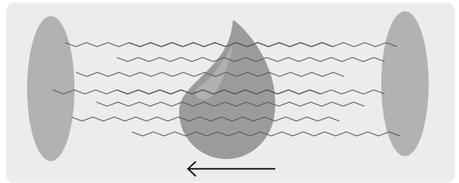
ReSound ONE, ReSound LiNX Quattro, ReSound ENZO Q and ReSound Key BTE and RIE hearing aids have IP68 certification. ReSound LiNX 3D BTE and RIE hearing aids have IP57 certification.

Environmental test

Hearing aids perform in harsh, corrosive environments, so they need to be rugged. During development, we stress test them to identify potential weaknesses in the electrical circuitry design. We typically run a several-week sequence exposing the hearing aids to things like salt water mist, humidity and temperature. Then we examine them for corrosion, migration, delimitation and other results negatively affecting performance.



Two solder points on a circuit board



Under a drop of salt water (like sweat), unprotected metals can migrate from one solder point to another. This would result in short circuiting and battery drain.

With iSolate nanotech coating. A stress test to see how corrosion can develop over time

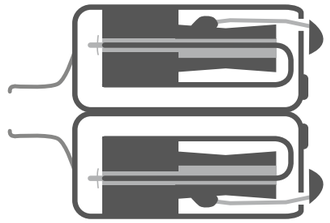
Without iSolate nanotech coating

Assembly

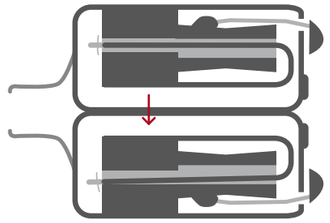
No matter how careful we are with components, entirely new issues can surface during assembly. One component can affect another adversely. The pressure, torque, tolerances, electromagnetic compatibility and many other things can produce unexpected results.

Drop and impact test

Some components in hearing aids, such as the receiver, are sensitive to physical shock. So shock absorbing suspensions are critical. We'd like ReSound hearing aids to surpass people's expectations for robustness. So we drop them on hard surfaces. We hit them under controlled conditions from many angles, testing the electro acoustic performance before and after. We use high-speed video to examine the effects of impact. We model the impact of the hearing aid on a hard surface after a free fall and optimize the design of suspensions, controlling the g-force to make sure the receiver isn't damaged. And we put hearing aids in a tumbler so they randomly hit the surface at angles impossible to duplicate in a controlled environment.



Good receiver with no bending of the armatures



Bendt armature due to high impact

Wax filter test

Earwax and human oils are natural substances, but they are problematic for electronic devices. So at ReSound, designing wax filters is serious business. A good wax filter means that only the filter needs to be changed periodically, rather than an entire component. So we test them thoroughly.

Artificial earwax test

ReSound R&D has developed a unique compound replicating the properties of earwax. We use this to better understand how earwax and human oils penetrate and affect hearing aids.

Audiology

Organic Hearing is a philosophy that inspires our innovations. It's the foundation of ReSound solutions that work with the individual hearing anatomy and organically with the brain, to provide the user with the most complete, individualised and natural sound experience – even in the most challenging listening situations. It lets the user express their true self, stay active and connect to a life without limitations.

An organic experience
ReSound solutions are built on our Organic Hearing philosophy and are designed to deliver sound the way nature intended. They uniquely and organically work with the individual ear anatomy and leverage the latest technological innovations to closely mimic how sounds in the environment are naturally collected and delivered to the brain. Having the whole sound picture lets the users instinctively select the sounds they want to listen to, and tone down the ones they don't.

What Organic Hearing can do for your clients
Hearing sound the way nature intended feels effortless and happens without thinking, so your clients can let their guard down and confidently get on with life, being their true self. Organic Hearing helps keep the brain active and always aims to give a truly individualised and inspirational experience.

Continuing our heritage
Since its beginnings, ReSound has brought innovations inspired by natural hearing. We introduced the first hearing aids to control loudness based on the healthy inner ear, pioneered the open fit to take advantage of natural ear acoustics, and applied directional technology for people to hear better in noise without limiting access to their surroundings. Our ideology is holistic, considering each user's hearing and the different ways they use it, which we believe will give them the best and most individualised experience with their hearing solution.
We take this approach because our purpose is to Make Life Sound Better.

Features - Premium and Advanced families

			PREMIUM			ADVANCED					
			RESOUND ONE			RESOUND LINX QUATTRO			RESOUND LINX 3D		
	Features		**RT9**	**RT7**	**RT5**	**RE9**	**RE7**	**RE5**	**LT9**	**LT7**	**LT5**
AUDIOLOGICAL FEATURES	WARP bands		17	14	12	17	14	12	17	14	12
	Input dynamic range		up to 116 dB	up to 116 dB	up to 116 dB	up to 116 dB	up to 116 dB	up to 116 dB	up to 106 dB	up to 106 dB	up to 106 dB
	Extended bandwidth		•	•	•	•	•	•			
	Environmental classifier		•	•	•	•	•	•	•	•	•
	Environment recognition	Environmental Optimiser II	•			•			•		
		Environmental Optimiser I		•	•		•			•	
	Directionality	All Access Directionality	STD / M&RIE	M&RIE							
		M&RIE	M&RIE	M&RIE							
		Spatial Sense	STD	STD		•			•		
		Ultra Focus	•								
		Binaural Directionality III		•		•			•		
		Binaural Directionality			•		•			•	
		Natural Directionality				•	•	•	•	•	•
		Synchronized Soft Switching	•	•	•	•	•		•	•	
		Soft Switching						•			•
		Autoscope	•			•			•		
		Multiscope		•			•			•	
		Adaptive Directionatily			•			•			•
		Fixed Directionality	•	•	•	•	•	•	•	•	•
		Adjustable Directional Mix	•			•			•		
	Noise reduction	Noise Tracker II	5 settings	3 settings	2 settings	5 settings	3 settings	2 settings	5 settings	3 settings	2 settings
		Personalised noise reduction	•			•			•		
	Expansion		3 settings	2 settings	On / Off	3 settings	2 settings	On / Off	3 settings	2 settings	On / Off
	Impulse Noise Reduction		3 settings	2 settings	On / Off	3 settings	2 settings				
	Wind Guard		3 settings	2 settings	On / Off	3 settings	2 settings	On / Off	3 settings	2 settings	On / Off
	Adjustable time constants		•	•		•	•		•	•	
	Multiple amplifcation strategies		•	•	•	•	•	•	•	•	•
	Feedback management	Type	DFS Ultra III	DFS Ultra III	DFS Ultra III	DFS Ultra II	DFS Ultra II	DFS Ultra II	DFS Ultra II	DFS Ultra II	DFS Ultra II
		Level	3 settings	3 settings	3 settings	3 settings	3 settings	3 settings	3 settings	3 settings	3 settings
		Music Mode	•	•	•	•	•	•	•	•	•
		Auto DFS	•	•	•	•	•	•	•	•	•
	Synchronised Acceptance Manager		•	•	•	•	•	•	•	•	•
	Tinnitus Sound Generator		•	•	•	•	•	•	•	•	•
	Low Frequency Boost		3 settings	2 settings	On / Off	3 settings	2 settings	On / Off	3 settings	2 settings	On / Off
	Sound Shaper		•	•	•	•	•	•	•	•	•
FUNCTIONAL FEATURES	e2e communication		•	•	•	•	•	•	•	•	•
	Direct audio streaming from iOS devices		•	•	•	•	•	•	•	•	•
	Direct audio streaming from Android devices*		•	•	•	•	•	•			
	Wireless accessories connectivity		•	•	•	•	•	•	•	•	•
	Phone Now		•	•	•	•	•	•	•	•	•
	Comfort Phone		•	•	•	•	•	•	•	•	•
FITTING FEATURES	Gain handles		17	14	12	17	14	12	17	14	12
	Programs		4	4	4	4	4	4	4	4	4
	Data Logging		•	•	•	•	•	•	•	•	•
	In Situ Audiometry (not available in customs)		•	•	•	•	•	•	•	•	•
	Automatic Receiver Detection		•	•	•						
REMOTE FEATURES	Remote Fine Tuning		•	•	•	•	•	•	•	•	•
	Remote Firmware Updates		•	•	•	•	•	•	•	•	•
	ReSound Assist Live		•	•	•	•	•	•	•	•	•

* Android 10 or newer.

Features - Essential family

			ESSENTIAL		
			RESOUND KEY		
	Features		**KE4**	**KE3**	**KE2**
AUDIOLOGICAL FEATURES	WARP bands		12	8	6
	Input dynamic range		Up to 116 dB	Up to 116 dB	Up to 116 dB
	Extended bandwidth		Up to 8k Hz	Up to 8k Hz	Up to 8k Hz
	Environmental classifier		•	•	•
	Directionality	Natural Directionality	•		
		Synchronized Soft Switching	•		
		Soft Switching		•	•
		Multiscope	•	•	
		Adaptive Directionatily			•
		Fixed Directionality	•	•	•
	Noise Tracker II		On / Off	On / Off	On / Off
	Expansion		On / Off	On / Off	On / Off
	Impulse Noise Reduction		On / Off		
	Wind Guard		On / Off	On / Off	On / Off
	Multiple amplifcation strategies		•	•	•
	Feedback management	Type	DFS Ultra II	DFS Ultra II	DFS Ultra II
		Level	3 settings	3 settings	3 settings
		Music Mode	•		
		Auto DFS	•	•	•
	Synchronised Acceptance Manager		•	•	•
	Tinnitus Sound Generator		•	•	•
	Low Frequency Boost		On / Off	On / Off	On / Off
FUNCTIONAL FEATURES	e2e communication		•	•	
	Direct audio streaming from iOS devices		•	•	
	Direct audio streaming from Android devices*		•	•	
	Wireless accessories connectivity		•	•	•
	Phone Now		•	•	•
	Comfort Phone		•	•	
FITTING FEATURES	Gain handles		12	8	6
	Programs		4	4	4
	Data Logging		•	•	•
REMOTE FEATURES	Remote Fine Tuning		•	•	•
	Remote Firmware Updates		•	•	•
	ReSound Assist Live		•	•	•

* Android 10 or newer.

Features - Advanced Super Power family

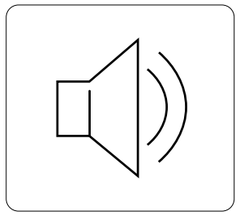
	Features		ADVANCED RESOUND ENZO Q EQ9	EQ7	EQ5
AUDIOLOGICAL FEATURES	WARP bands		17	14	12
	Input dynamic range		up to 104 dB	up to 104 dB	up to 104 dB
	Environmental classifier		•	•	•
	Environment recognition	Environmental Optimiser II	•		
		Environmental Optimiser I		•	
	Directionality	All Access Directionality			
		M&RIE			
		Spatial Sense	•		
		Ultra Focus			
		Binaural Directionality III	•		
		Binaural Directionality		•	
		Natural Directionality	•	•	•
		Synchronized Soft Switching	•	•	
		Soft Switching	•	•	•
		Autoscope Adaptive Directionality	•		
		Multiscope Adaptive Directionality		•	
		Adaptive Directionatily			•
		Fixed Directionality	•	•	•
		Adjustable Directional Mix	•		
	Noise reduction	Noise Tracker II	5 settings	3 settings	2 settings
		Personalised noise reduction	•		
	Expansion		3 settings	2 settings	On / Off
	Impulse Noise Reduction		3 settings	3 settings	
	Wind Guard		3 settings	2 settings	On / Off
	Adjustable time constants		•	•	
	Multiple amplifcation strategies		•	•	•
	Feedback management	Type	DFS Ultra II	DFS Ultra II	DFS Ultra II
		Level	3 settings	3 settings	3 settings
		Music Mode	•	•	•
		Auto DFS	•	•	•
	Synchronised Acceptance Manager		•	•	•
	Tinnitus Sound Generator		•	•	•
	Low Frequency Boost		3 settings	2 settings	On / Off
	Sound Shaper		•	•	•
FUNCTIONAL FEATURES	e2e communication		•	•	•
	Direct audio streaming from iOS devices		•	•	•
	Direct audio streaming from Android devices*		•	•	•
	Wireless accessories connectivity		•	•	•
	Phone Now		•	•	•
	Comfort Phone		•	•	•
FITTING FEATURES	Gain handles		17	14	12
	Programs		4	4	4
	Data Logging		•	•	•
	In Situ Audiometry (not available in customs)		•	•	•
REMOTE FEATURES	Remote Fine Tuning		•	•	•
	Remote Firmware Updates		•	•	•
	ReSound Assist Live		•	•	•

* Android 10 or newer.

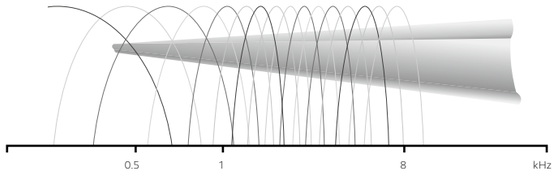
Warp Processing

Role
Replicates the way the natural ear divides sound into distinct pitches

User benefit
Near-zero distortion and remarkable purity of sound.



ReSound devices analyze sound with similar resolution to the human cochlea.



If one could unroll the cochlea (above left), the area which responds to high frequencies would be on the right and low frequencies on the left. The best way to model the cochlea in digital hearing aid processing is with our Warp™ processor. The frequencies of incoming sounds are mapped to a nonlinear scale similarly to the healthy cochlea.

Gain Handles

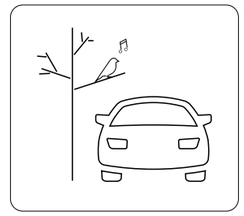
Gain handles allow the fitter to shape the frequency response and change the compression ratios at discrete frequencies. Hearing aids offer between 5 -17 gain handles, depending on the model.

RESOUND MODEL	MAXIMUM FREQUENCY HANDLES
RS ONE 9 / RS LiNX Quattro 9 / RS LiNX 3D 9 / RS ENZO Q 9	17
RS ONE 7 / RS LiNX Quattro 7 / RS LiNX 3D 7 / RS ENZO Q 7	14
RS ONE 5 / RS LiNX Quattro 5 / RS LiNX 3D 5 / RS ENZO Q 5 / RS Key 4	12
RS Key 3	8
RS Key 2	6

Environmental Classifier

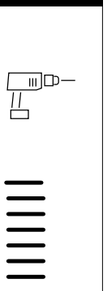
Role
Analyzes the incoming sounds and classifies them into listening environments

User benefit
Sets the foundation for a comfortable hearing experience



Hearing instruments have complex sound processing that adapts to the listening environment. One way they do this is by recognizing characteristics of incoming sound and categorizing them in a meaningful and accurate way.

Environmental Classifier employs sophisticated speech and noise detection algorithms based on frequency content and spectral balance, as well as the temporal properties of the incoming sound. Furthermore, the classification is calculated on the basis of probabilistic models, resulting in classification of listening environments which has shown a high degree of consistency with listener perception. Automatic control of feature settings based on the acoustic environment is transparent and natural-sounding. The user benefits without noticing changes in the sound processing.

THE SEVEN ENVIRONMENTS IN ENVIRONMENTAL CLASSIFIER						
						
Quiet	Soft Speech	Loud Speech	Speech in moderate noise	Speech in loud noise	Moderate noise	Loud noise
< 54 dB	< 60 dB	> 60 dB	< 75 dB	> 75 dB	< 75 dB	> 75 dB

Time used to determine an environment: 4 seconds or less

Environmental Optimizer

Role

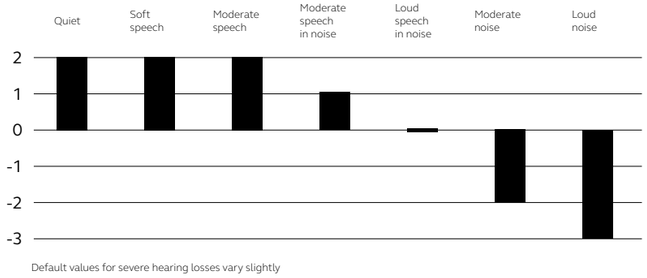
Provide automatic adjustment of hearing instrument settings

User benefit

Users enjoy optimal audibility and listening comfort even when moving through rapidly changing sound environments, and without needing to make frequent manual adjustments.

It is well-known that hearing aid users often have varying preferences for hearing aid volume depending on the listening environment.Therefore, when the Environmental Classifier identifies an environment, the Environmental Optimizer automatically adjusts the volume, which saves the user the trouble of frequent manual adjustments of volume control or program change.

Automatic volume adjustment when Environmental Optimizer is enabled



Default values for severe hearing losses vary slightly

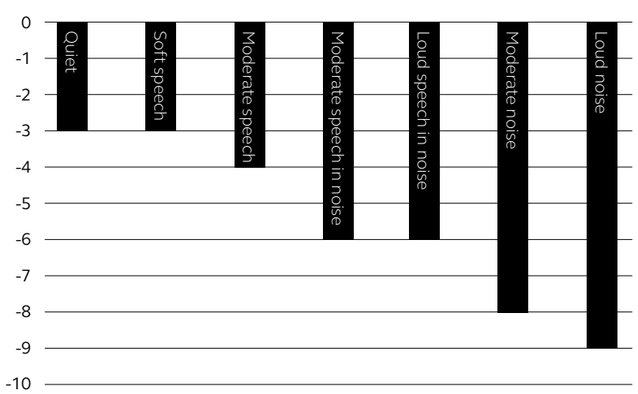
Time to determine need to change environment: 4 seconds.

Duration of transition: 1 dB per second

Environmental Optimizer II

In addition to volume per environment, Environmental Optimizer II has individually tailored adaptive noise reduction (NoiseTracker™ II) assigned to each environment. It is an extraordinary solution for hearing aid users because both the need to adapt to multiple listening environments and comfort in noise are balanced.

Default NoiseTracker II reduction when Environmental Optimizer II is enabled



Binaural Environmental Optimizer II

Allows the two instruments to wirelessly exchange data about the environment in order to ensure that they work in cooperation when identifying environments.

ENVIRONMENTAL OPTIMIZER OVERVIEW	
VERSION	DESCRIPTION
Environmental Optimizer	Gain per environment
Environmental Optimizer II	Gain and noise reduction per environment
Binaural Environmental Optimizer II	Gain and noise per environment with synchronization between right/left

Frequency of data exchange between the instruments: every 222 milliseconds

RESOUND MODEL	CHOICE
RS ONE 9 / RS LiNX Quattro 9 / RS LiNX 3D 9 / RS ENZO Q 9	Binaural Environmental Optimiser II
RS ONE 7, RS ONE 5 / RS LiNX Quattro 7 / RS LiNX 3D 7 / RS ENZO Q 7	Environmental Optimizer

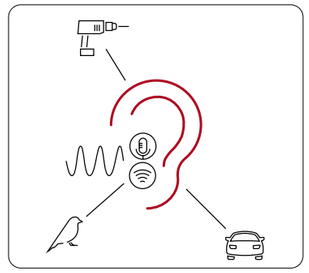
Microphone & Receiver-In-Ear (M&RIE)

Role

Places a microphone in the ear canal as part of the receiver module, taking advantage of filtering by the user's unique ear shape to collect sound the way nature intended.

User benefit

An immersive and individualised hearing experience with greater depth and direction, sense of space and localisation.



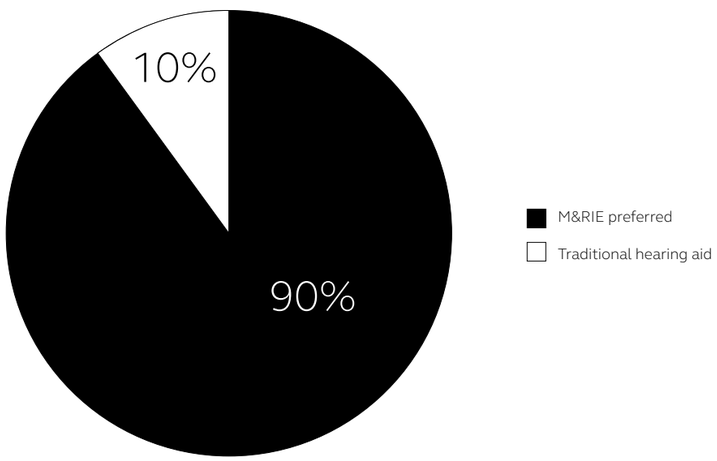
M&RIE users recognise sounds from the front and back of them 10% more accurately*. They get the natural sound of custom products, combined with the advanced features and ease of use of a Receiver-in-the-Ear model.

The microphone location inside the ear canal offers natural protection from wind noise, eliminating the need for gain reduction features. Compared to microphone location on the RIE device, wind noise is reduced by 15 dB with M&RIE*, so whether they are out for a run or just enjoying a summer day, clients can hear comfortably.

M&RIE is integrated in the All Access Directionality strategy, and can also be selected for a customized listening program

*Groth J. (2020). An innovative RIE with microphone in the ear lets users "hear with their own ears". ReSound white paper.

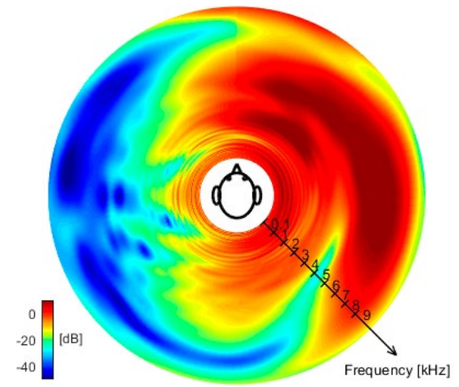
Natural sound quality preferred with M&RIE



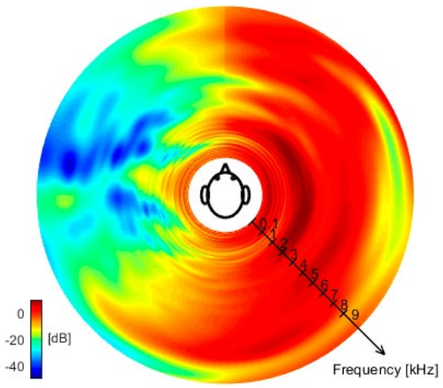
Spectrogram responses

This figure shows the angle-dependent attenuation for the unaided right ear. Dark red indicates little-to-no attenuation. M&RIE performs almost identically to the open ear (unaided ear).

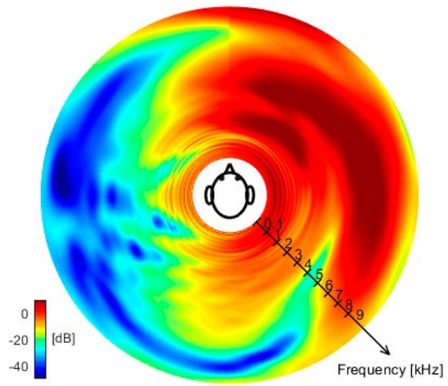
Unaided Ear



BTE



ReSound ONE with M&RIE

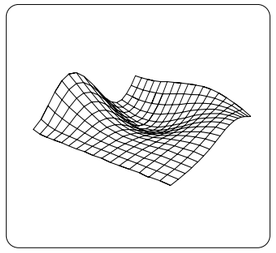


RESOUND MODEL	CHOICE
RS ONE 9, RS ONE 7	Available when using MM receiver (M&RIE)

Spatial Sense

Role
Replaces spatial cues that are disrupted due to hearing aid placement behind the ear and the effects of wide dynamic range compression

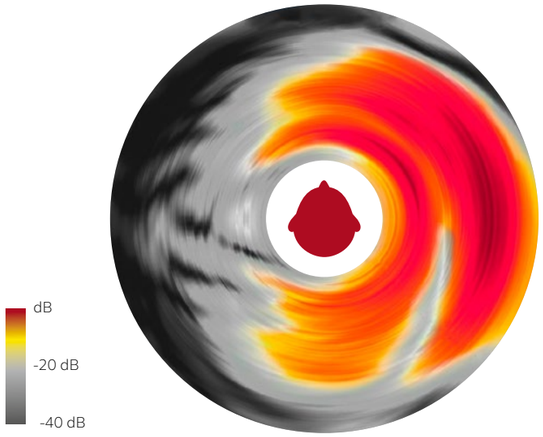
User benefit
Vivid spatial awareness with exceptional sound quality



Spatial Sense is a combination of two algorithms. The first is a pinna compensation algorithm that is activated for BTE models and RIE with standard receivers. The pinna compensation helps to restore monaural spectral cues of the open ear that are disrupted by positioning the hearing aid microphone outside the pinna.

The second algorithm preserves the Interaural Level Difference (ILD), which is the natural difference in the levels of sound reaching each ear that are caused by the head shadow. This is an important binaural localization cue that can be disrupted by Wide Dynamic Range Compression.

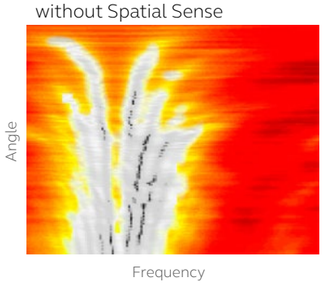
Unaided Ear



This figure shows the angle-dependent attenuation for the unaided right ear. Dark red indicates little-to-no attenuation. The characteristic attenuation pattern for the unaided ear is emulated by Spatial Sense.

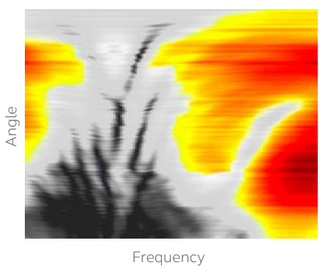
Errors in front-back localization and overall localization errors for sounds coming from multiple angles are reduced with Spatial Sense.

BTE
without Spatial Sense



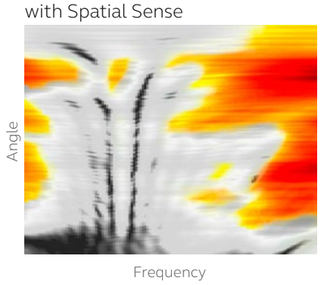
Many spatial cues are lost

Unaided Ear



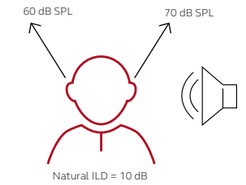
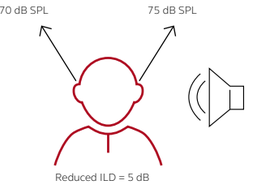
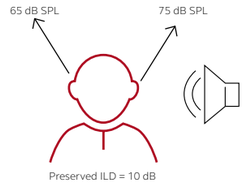
Attenuation pattern of the right, unaided ear

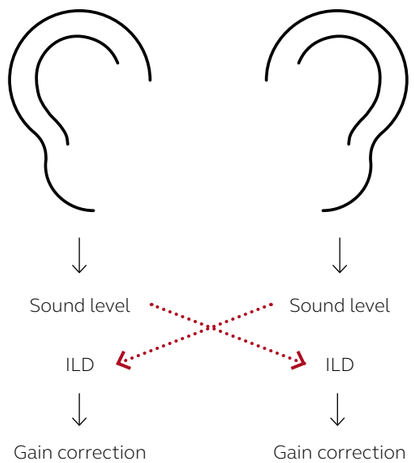
BTE
with Spatial Sense



Attenuation pattern closely resembles that of the unaided ear

Interaural level difference (ILD) restoration
Sounds not directly in front or in back are more intense at the ear closest to the sound. WDRC can disturb this important localization cue. For example:

Without amplification The signal reaches the left ear at 70 dB, and then the right ear at 60 dB. The interaural level difference (ILD) is thus 10 dB, because of the shadowing effect of the head. It is easy to perceive that the sound comes from the left side.	
With WDRC amplification WDRC may add 5 dB gain on the left and 10 dB on the right because softer sounds are amplified more by WDRC. The ILD is thus reduced to 5 dB – it is more difficult to perceive where the sound comes from.	
With WDRC amplification AND Spatial Sense Spatial Sense calculates the correct ILD and preserves it by aligning the gains of the two hearing aids based on Ear-to-Ear data exchange.	



The ear-to-ear data exchange between hearing aids is analogous to the crossing of signals between ears in the auditory system. This helps to emulate ILD preservation in a way most similar to the normal auditory processes

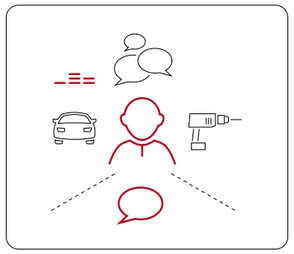
RESOUND MODEL	CHOICE
RS ONE 9, RS ONE 7	Spatial Sense available when using LP, MP, HP and UP receivers.
RS LiNX Quattro 9 / RS LiNX 3D 9 / RS ENZO Q 9	Spatial Sense available
Note: No Spatial Sense in custom models	

Only for dual microphone hearing aids

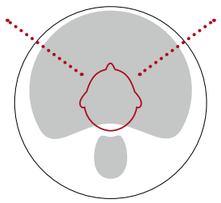
Directional Sound Processing

Role
Improves SNR by reducing the amplification of sounds coming from behind the user

User benefit
Improves speech intelligibility in noisy situations

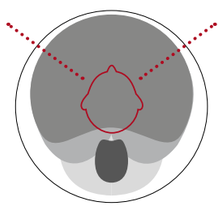


Directionality uses the sound collected by two microphones to enhance the amplification of sounds coming from the front more than sounds coming from behind.



Fixed Directionality

Fixed directionality is the simplest directional option and provides a non-varying hypercardioid pattern. In this setting, signals coming from behind and the sides are reduced in order to enable the user to better concentrate on signal from the front. The directional characteristics are constant and static. If selected, this type of directionality is always 'on.'

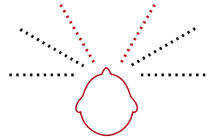


Adaptive Directionality

Adaptive Directionality is similar to Fixed Directionality, but Adaptive Directionality dynamically changes the directional pattern to reduce the loudest sounds from the rear. This is preferable to Fixed Directionality for users often in environments with multiple, moving, or simultaneous noise sources.

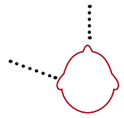
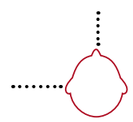
Integrated Wind Noise Management™

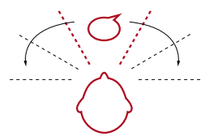
Adaptive directionality also features classic wind noise reduction for devices without Wind Guard™.



Multiscope Directionality

Multiscope Directionality is an advanced form of Adaptive Directionality that allows the width of the directional beam to be set in the fitting software, in effect making the area of focus larger or smaller.

MULTISCOPE DIRECTIONALITY SPECIFICATIONS		
SETTING	MONAURAL FITTING APPROX. ANGLE OF FOCUS	BINAURAL FITTING APPROX. ANGLE OF FOCUS
NARROW	 50°	 80°
MEDIUM	 70°	 120°
WIDE	 90°	 180°



Autoscope Directionality

Autoscope is an automated form of Multiscope where the beamwidth adjusts depending on the strength of the speech signal in front of the user.

Time necessary to adjust from "narrow" to "wide": 4 seconds.

Only for dual microphone hearing aids

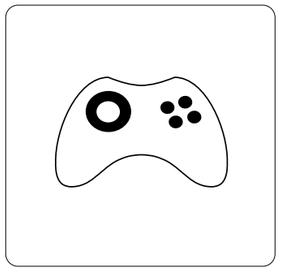
Controlling Directional Sound Processing

Role

To provide the brain with acoustic information so users can select and focus on whatever sound they are interested in, without requiring them to be vigilant about changing programs

User benefIt

Natural and unobtrusive way to ensure hearing aids are in the directional mode when needed.



Studies show that most hearing aid wearers with selectable programs remain in the same program most of the time. Thus they may not benefit from directionality. At the same time, conventional directionality may reduce the user's awareness of their surroundings. The following are specialized features that automatically activate directional sound processing based on the sound environment. They ensure appropriate use of directionality and help balance directional benefit with environmental awareness.

Soft Switching

Smoothly switches the hearing aid between omni and directional mode depending on the sound environment. This is available for Adaptive Directionality, Multiscope and Autoscope options and unlike the binaural strategies, is also applicable to monaural fittings.

SOFT SWITCHING MICROPHONE MODES					
Front	Speech	Speech	Speech	Noise	Noise
Rear	Quiet	Babble	Noise	Noise	Speech
MICROPHONE RESPONSE	Omni	Directional	Directional	Omni	Omni

Synchronized Soft Switching

Uses Ear-to-Ear communication to ensure both instruments in a binaural fitting are in the same microphone mode.

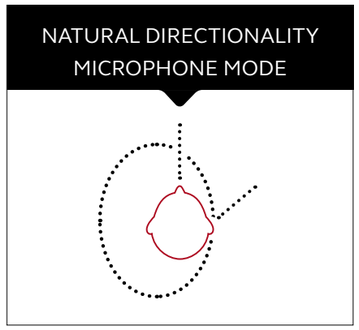
Activation time:
Time to identify directional need; 3 seconds.

Duration of activation to directional; 10 seconds.

De activation time:
Time to identify directional need has ceased; 3 seconds.
Duration of deactivation to omni; 20 seconds.

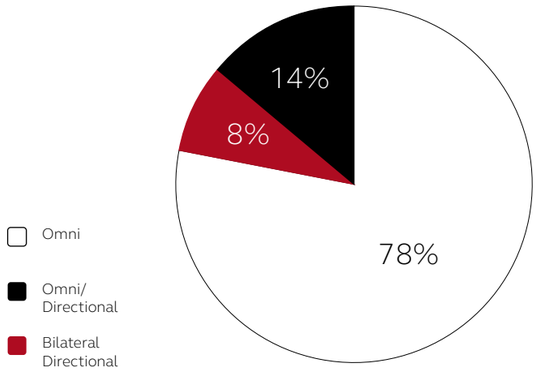
Natural Directionality II

Employs an asymmetrical fitting strategy with one ear always in directional (the "focus" ear) and one ear always in omni (the "monitor" ear). The focus ear is prescribed according to the better-hearing ear. The brain can create a unified binaural image based on which ear has the better representation of the signal of interest. This allows users to stay aware of background noises, doesn't require user vigilance to change programs, and increases ease of listening.



Binaural Directionality

Relies on Ear-to-Ear data exchange to select the optimal microphone mode on each ear so the strongest voice signal is clear without losing the ability to perceive the surroundings and other speakers.



Clinical studies show that wearers using Binaural Directionality were in a directional mode 22% of the time, which is in agreement with research on user preferences for directionality in daily life.

BINAURAL DIRECTIONALITY MICROPHONE MODES				
MICROPHONE RESPONSE	Dir/ Dlr	Dir/ Omni	Omni/ Dir	Omni/ Omni

Binaural Directionality II with Spatial Sense

Expands the Binaural Directionality strategy by using Spatial Sense when the hearing aids are in the omni/omni microphone mode.

Only for dual microphone hearing aids

Binaural Directionality III

Improves the ability to stay aware of sounds to the sides and back; more than 30% of the time, the signal of interest is not directly in front of the hearing aid wearer.

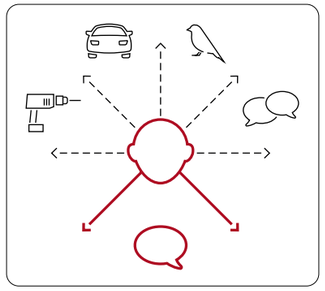
All Access Directionality

Role

Automatically adjusts directional microphone patterns according to a binaural hearing strategy

User benefit

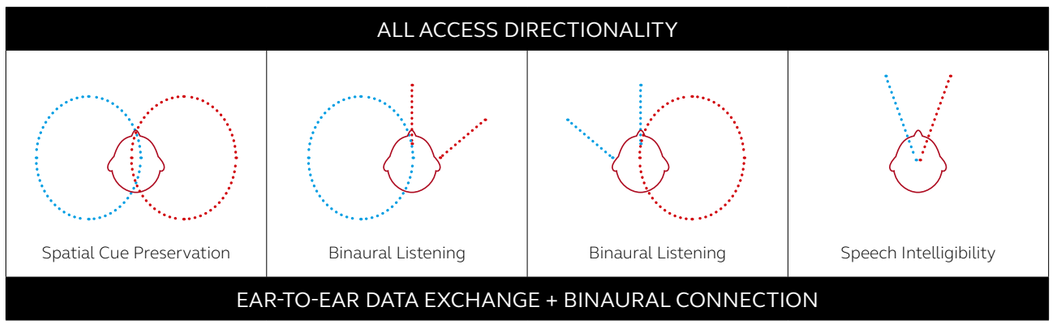
Provides the optimum settings to help users effortlessly engage with people and surrounding sounds as they move through their daily listening situations



The Environmental Classifier monitors the acoustic environment and automatically switches among different modes with specially designed directional patterns to support three listening strategies. This ensures that clients have the most optimised settings to hear their best in any situation. They get superior sound quality in quieter situations, and ability to follow dynamic conversations without losing touch with their surroundings when there is background noise.

In noisier situations, All Access Directionality uses a new binaural connection to create a stronger, more focused beam for sounds in front of the listener. Compared to traditional directionality it provides up to 2dB better signal-to-noise ratio*.

* Groth J. (2020). The evolution of the binaural hearing strategy: All Access Directionality and Ultra Focus. ReSound white paper.



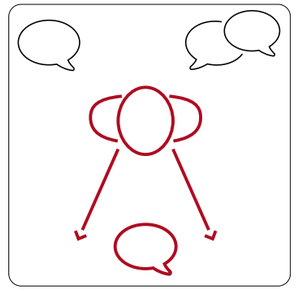
Ultra Focus

Role

Forms a powerful directional pattern using the sound from both hearing aids so your client can focus on the person in front of them

User benefit

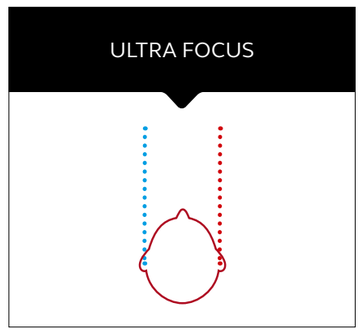
Our best one-to-one hearing experience in the toughest environments



Ultra Focus prioritises sound from the side with the least noise to make the speech as clear as possible. This unique feature gives up to 1.5 dB signal-to-noise ratio improvement when noise is louder on one side. While speech is made clearer, Ultra Focus can still help clients maintain spatial cues around them, by using the speech frequencies for the targeted directionality in front and the high and low frequencies to monitor the environment. It provides up to 30% percent improvement in speech understanding over All Access Directionality*

Your clients can choose Ultra Focus via the ReSound Smart 3D app or the program button on their ReSound ONE hearing aids.

* Groth J. (2020). The evolution of the binaural hearing strategy: All Access Directionality and Ultra Focus. ReSound white paper.



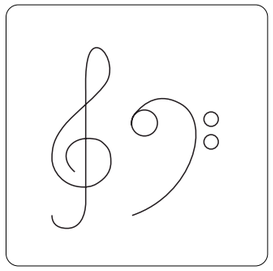
Directional Mix

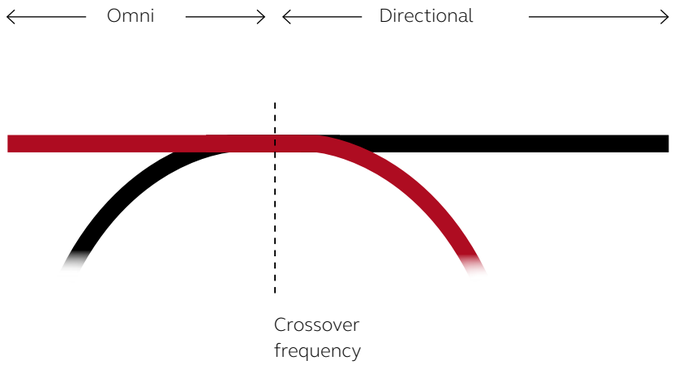
Role

Prepares low and high pitches to be treated differently. Directionality can be applied to high pitches, while low pitches always remain in omni.

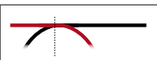
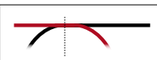
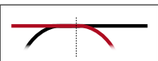
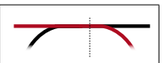
User benefit

Rich sound quality and enhanced ability to understand speech while retaining awareness of surroundings.

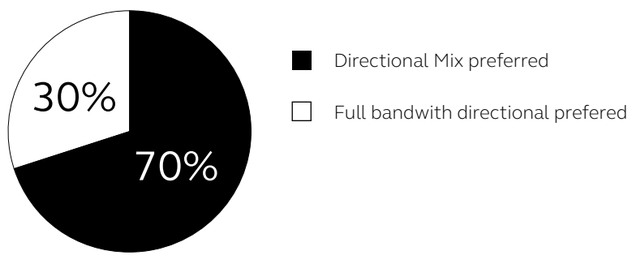




The lower signals, whose frequencies are below the crossover frequency are amplified as omni. The crossover frequency depends on the space between the hearing instrument's two microphones.

SELECTION		 Very high	 High	 Low	 Very low
RS ONE	Series 61	550 Hz	800 Hz	1150 Hz	1500 Hz
RSLiNX Quattro, RS LiNX 3D, RS Key	Series 61	500 Hz	800 Hz	1150 Hz	1500 Hz
RS LiNX Quattro RS LiNX 3D RS Key	Series 62	600 Hz	900 Hz	1200 Hz	1500 Hz
	Series 67	450 Hz	750 Hz	1100 Hz	1450 Hz
	Series 77	450 Hz	800 Hz	1150 Hz	1500 Hz
	Series 88	500 Hz	800 Hz	1150 Hz	1500 Hz
RS ENZO Q	Series 98	600 Hz	775 Hz	1050 Hz	1325 Hz
All RS customs	5mm spacing	800 Hz	1050 Hz	1300 Hz	1550 Hz
RS ITE custom	10mm spacing	600 Hz	850 Hz	1100 Hz	1350 Hz

Sound quality preference for Directional Mix



RESOUND MODEL	CHOICE
RS ONE 9 / RS LiNX Quattro 9 / RS LiNX 3D 9 / RS ENZO Q 9	Very low Low High Very high
RS ONE 7, RS ONE 5 / RS LiNX Quattro 7, RS LiNX Quattro 5 / RS LiNX 3D 7, RS LiNX 3D 5 / RS ENZO Q 7, RS ENZO Q 5 / RS Key 4, RS Key 3, RS Key 2	Prescribed by fitting software depending on the audiogram

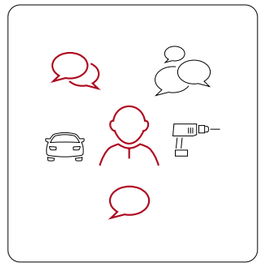
Only for dual microphone hearing aids

DIRECTIONAL FEATURES OVERVIEW												
RESOUND MODEL	Fixed Directionality	Adaptative Directionality	Adaptative Directionality with wind management	Multiscope	Autoscope	Soft Switching	Synchronized Soft Switching	Natural Directionality II	Binaural Directionality	Binaural Directionality III	All Access Directionality	Ultra Focus
RS ONE 9	•	•			•		•				With STD receiver and M&RIE	•
RS LiNX Quattro 9 / RS LiNX 3D 9 / RS ENZO Q 9	•	•			•		•			•		
RS ONE 7	•	•		•			•			•	Only with M&RIE	
RS LiNX Quattro 7 / RS LiNX 3D 7 / RS ENZO Q 7	•	•		•			•		•			
RS ONE 5	•	•					•		•			
RS LiNX Quattro 5 / RS LiNX 3D 5 / RS ENZO Q 5	•	•				•		•				
RS Key 4	•			•			•	•				
RS Key 3	•			•		•						
RS Key 2	•	•										

NoiseTracker II

Role
Reduces disturbing background sound without affecting speech audibility

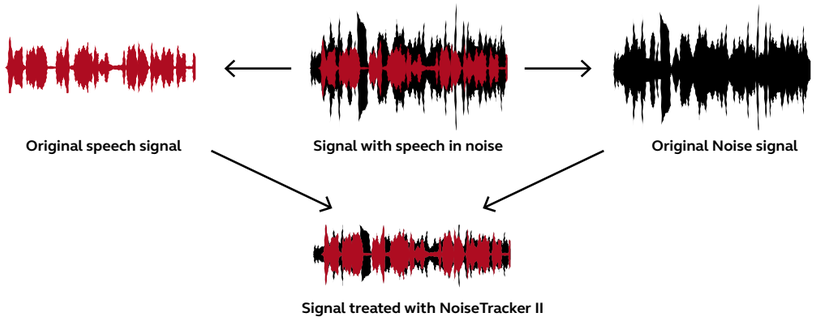
User benefit
Improves listening comfort without compromising speech understanding



NoiseTracker™ II reduces noise by spectral subtraction. It analyzes the incoming sound and recognizes when speech is present within the individual bands. A spectral analysis is continuously carried out whenever speech is not present. This allows the noise spectrum to effectively be “subtracted” from the total signal without affecting speech.

The amount of noise subtracted is dependent on the setting, and is weighted according to a speech importance function.

For devices with a situation-dependent noise reduction, the setting can be different for each of the 7 environments recognized by the Environment Classifier. To ensure a seamless, natural listening experience, an infinite number of actual settings are applied based on a weighted analysis of the Environmental Classifier data.



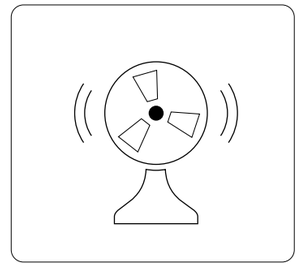
RESOUND MODEL	CHOICE
RS ONE 9 / RS LiNX Quattro 9 / RS LiNX 3D 9 / RS ENZO Q 9	Mild Moderate Considerable Strong Per Environment
RS ONE 7 / RS LiNX Quattro 7 / RS LiNX 3D 7 / RS ENZO Q 7	Mild Moderate Considerable
RS ONE 5 / RS LiNX Quattro 5 / RS LiNX 3D 5 / RS ENZO Q 5	Mild Moderate
RS Key 4, RS Key 3, RS Key 2	On/off
On = Mild	

NOISE TRACKER II SPECIFICATIONS	
SETTING	REDUCTION
Mild	– 3 dB
Moderate	– 6 dB
Considerable	– 8 dB
Strong	– 10 dB

Expansion

Role
Reduces amplification for very soft sounds which are not of interest to the wearer, such as very low level environmental sounds or noise generated internally by the hearing instrument.

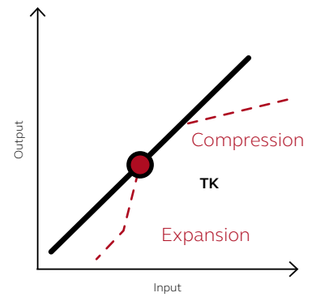
User benefit
Users, especially those with mild hearing loss, will be undisturbed by the noise of the hearing aid. The hearing instrument itself sounds quiet.



Our modern world is filled with many soft sounds that people with unimpaired hearing naturally filter out, for example the humming of a refrigerator or of a computer fan. Expansion reduces amplification of very soft sounds so that soft background noises and noise from the microphones are not distracting, providing the best backdrop for pleasurable listening and moving through rapidly changing sound environments without needing to make frequent manual adjustments.

EXPANSION SPECIFICATIONS		
Setting	Maximum reduction	Threshold kneepoint (TK)
Low	3 (dB)	26 dB < TK < 38 dB TK ≈ 32 dB
Medium	6 (dB)	29 dB < TK < 41 dB TK ≈ 35 dB
High	9 (dB)	29 dB < TK < 41 dB TK ≈ 38 dB

The exact value of the kneepoint varies by model, as it is dependent on the components used in the device. It varies also from one frequency band to another



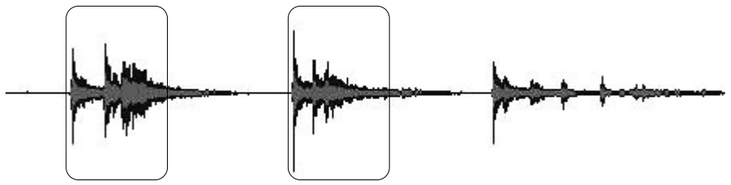
RESOUND MODEL	CHOICE
RS ONE 9 / RS LiNX Quattro 9 / RS LiNX 3D 9 / RS ENZO Q 9	Mild Moderate Strong
RS ONE 7 / RS LiNX Quattro 7 / RS LiNX 3D 7 / RS ENZO Q 7	Mild Moderate
RS ONE 5 / RS LiNX Quattro 5 / RS LiNX 3D 5 / RS ENZO Q 5 / RS Key 4, RS Key 3, RS Key 2	On/off
On=Mild	

Expansion ratio: 2:1
Attack time: 50 ms
Release time: 250 ms

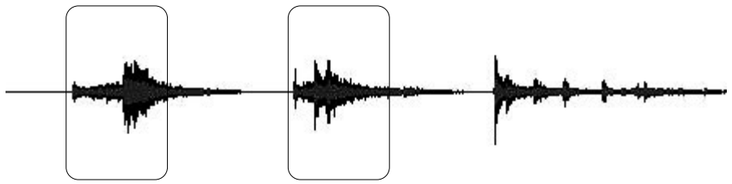
Impulse Noise Reduction

Role
Reduces amplification for sudden, brief noises.

User benefit
Improves listening comfort and sound quality for impulse sounds like clanking silverware or jangling keys



Without Impulse noise reduction



With impulse noise reduction

Impulse noise reduction works in parallel with the Warp compression system to ensure that transient sounds are not overamplified. Soft transient speech sounds are preserved. In this example, the sound of plates being stacked was recorded through a ReSound LiNX Quattro hearing aid with (bottom panel) and without (top panel) impulse noise reduction active. The boxes show how peaks where overshoot occurs are reduced with impulse noise reduction.

RESOUND MODEL	CHOICE
RS ONE 9 / RS LiNX Quattro 9 / RS ENZO Q 9	Mild Moderate Strong
RS ONE 7 / RS LiNX Quattro 7 / RS ENZO Q 7	Mild Moderate
RS ONE 5 / RS Key 4	On / Off
RS LiNX Quattro 5 / RS ENZO Q 5 / RS LiNX 3D 9, RS LiNX 3D 7, RS LiNX 3D 5 / RS Key 3, RS Key 2	Not available

Wind Guard

Role
To accurately detect wind noise, and adaptively reduce it.

User benefit
A natural sounding experience, with soft wind awareness in the background and minimal impact on audibility of other sounds in the environment

Wind Guard is an advanced wind noise suppression system which

1. Constantly monitors and stores the gain levels of each of the Warp bands.
2. Uses dual microphones to recognize the presence of wind; turbulence caused by wind is uniquely identifiable because it is uncorrelated at the two microphones.
3. Adaptively reduces gain to the same level as before wind was detected.

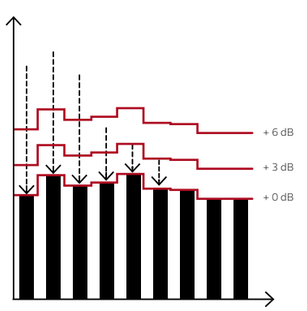
This sophisticated algorithm varies with the environment and the level of the wind noise, making the reduction personalized to the situation without sacrificing audibility for other sounds.

THE THREE STATES OF WIND GUARD		
		
OFF - no wind noise detected; environmental sound levels monitored	OFF - soft wind noise detected; environmental sound levels stored	ON - moderate to loud wind noise detected; gain reduced to stored environmental levels

RESOUND MODEL	CHOICE
RS ONE 9 / RS LiNX Quattro 9 / RS LiNX 3D 9 / RS ENZO Q 9	Mild Moderate Strong
RS ONE 7 / RS LiNX Quattro 7 / RS LiNX 3D 7 / RS ENZO Q 7	Mild Moderate
RS ONE 5 / RS LiNX Quattro 5 / RS LiNX 3D 5 / RS ENZO Q 5 / RS Key 4, RS Key 3, RS Key 2	On/Off

*On = Mild

WIND GUARD SPECIFICATIONS	
Setting	Definition
Mild	Fc* + 6 dB
Moderate	Fc + 3 dB
Strong	Fc + 0 dB

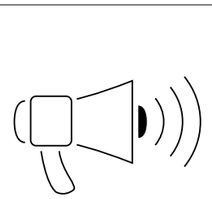


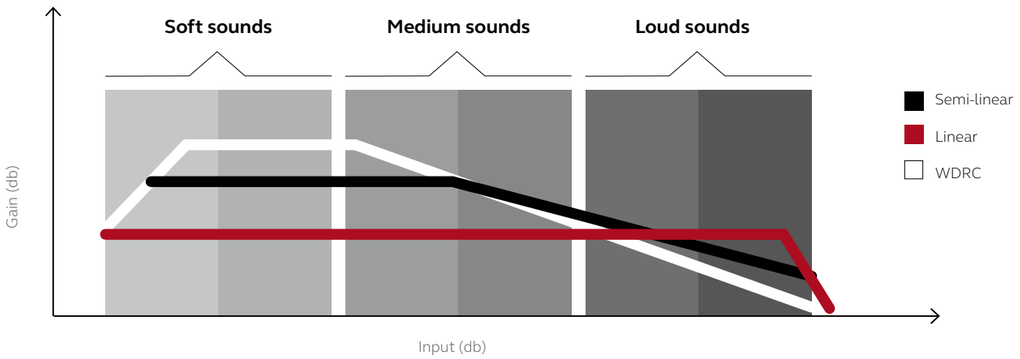
*Fc = Full compensation to the average level of the sound environment (wind noise level)

Amplification modes

Role
Provides fitting flexibility for experienced users with severe and profound hearing losses, many of whom have developed a preference for the sound to which they are already accustomed.

User benefit
The hearing instrument provides the preferred sound quality.



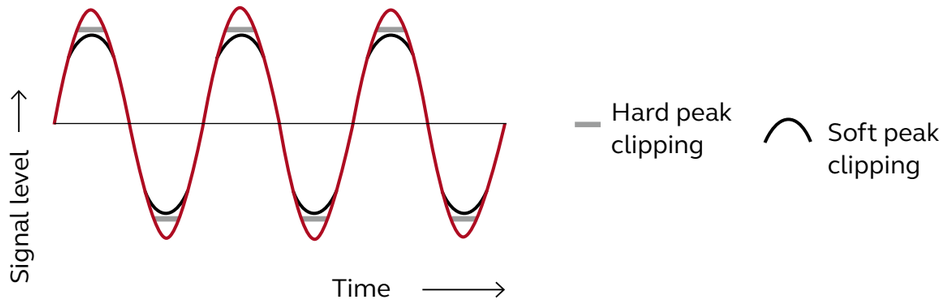


3 Amplification modes

1. WDRC
Provides compression prescribed by the selected fitting target.

2. Semi-linear
Reduces compression ratios prescribed by the selected fitting target by reducing the gain for soft inputs and increasing gain for loud inputs. Both WDRC and semi-linear modes use compression limiting to control maximum output, for the least distortion (most commonly preferred by hearing aid wearers).

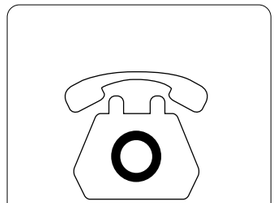
3. Linear
Provides a compression ratio of 1:1, setting the gains for soft and loud inputs to the same targets as for moderate level. In this mode, Soft Peak Clipping and Hard Peak Clipping are options for limiting the output of the hearing aid. Despite that both options create more distortion in the output of the hearing aid (Hard Peak Clipping creates the most), it is sometimes preferred by those with severe and profound hearing losses.



PhoneNow

Role
Switches automatically to a telephone program upon detection of a handset.

User benefit
User can conveniently use the phone without needing to consider hearing aid programs



The PhoneNow™ program is activated by magnetic fields, generated either by the handset of a stationary phone or by a small magnet located on the handset or mobile phone. When the handset is held to the ear, the hearing instrument detects the magnetic field and switches to PhoneNow™. This program can be acoustic (where the microphone of the hearing instrument is used) or inductive (the telecoil of the instrument is used).

DETECTION DISTANCE
Around 2 cm

Activation time:
Less than one second

Deactivation time:
3 to 4 seconds

Comfort Phone Function

When one device is activated with the PhoneNow™ program, the Comfort Phone™ feature uses Ear-to-Ear communication to automatically reduce the gain of the other device by 6 dB. This allows the wearer to concentrate more easily on the phone conversation.

RESOUND MODEL	CHOICE
RS ONE 9, RS ONE 7, RS ONE 5 / RS LiNX Quattro 9, RS LiNX Quattro 7, RS LiNX Quattro 5 / RS LiNX 3D 9, RS LiNX 3D 7, RS LiNX 3D 5 / RS Enya 4 / RS ENZO Q 9, RS ENZO Q 7, RS ENZO Q 5 / RS Key 4, RS Key 3	PHONE NOW COMFORT PHONE
RS Key 2	PHONE NOW
*Comfort Phone not available on some custom models due to the ear to ear functionality	

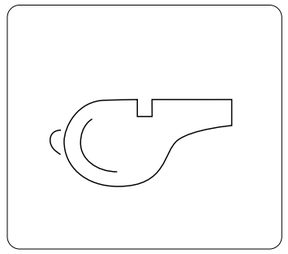
DFS digital feedback suppression

Role

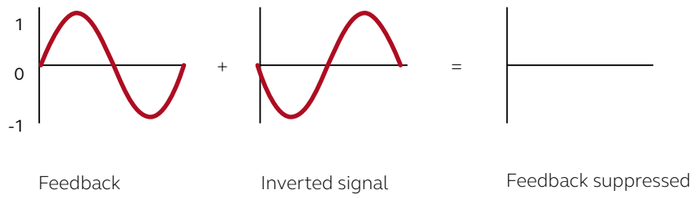
Reduces feedback while preserving amplification without compromising sound quality

User benefit

User is not bothered by feedback or by sudden reduction of volume, which some other hearing aids do to prevent feedback.

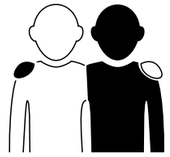


When feedback is detected, a phase-inverted signal is applied, which cancels out the whistling. ReSound's DFS applies two individual control systems that work together to provide maximum comfort with feedback-free hearing



Static control

The system analyzes the calibration signal during fitting and neutralizes feedback with a static control signal. This accounts for the unchanging contributors to feedback such as venting, ear geometry, and hearing aid components.



Dynamic control

The dynamic control system includes two parts. One is a dynamic filter that changes to eliminate feedback via phase cancellation when wearing the hearing aids. In extreme situations where the feedback cancellation may be overwhelmed, dynamic gain restoration layers on top to ensure comfortable listening.

Whistle Control

As part of the dynamic control system, Whistle Control is used only in extreme cases, when DSF alone cannot cancel feedback completely. In such cases, it lowers the gain to the prescribed level of frequencies affected by feedback until feedback is eliminated.

Auto DFS

This DFS option learns the feedback path of the individual to efficiently cancel feedback. Whistle Control is not built in to Auto DFS.

Music Mode

Music is typically difficult for feedback cancellation systems to process, as it is difficult to distinguish true feedback from other tonal input sounds. Music Mode uses the same processing as DFS Ultra II, but slows down feedback cancellation to ensure that tonal sounds are not adversely affected. Rich sound quality for music is preserved.

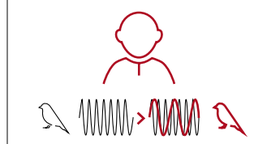
DFS OVERVIEW				
SETTING	AUTO DFS	ADVANCED DETECTION ALGORITHM	WHISTLE CONTROL	MUSIC MODE
DFS Ultra III	•	•	•	•
DFS Ultra II	•	•	•	•

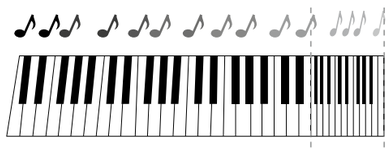
RESOUND MODEL	TYPE OF DFS	CHOICE
RS ONE 9, RS ONE 7, RS ONE 5	DFS Ultra III	Mild Moderate Strong Music Mode
RS LiNX Quattro 9, RS LiNX Quattro 7, RS LiNX Quattro 5 / RS LiNX 3D 9, RS LiNX 3D 7, RS LiNX 3D 5 / RS ENZO Q 9, RS ENZO Q 7, RS ENZO Q 5 / RS Key 4	DFS Ultra II	Mild Moderate Strong Music Mode
RS Key 3, RS Key 2	DFS Ultra II	Mild Moderate Strong

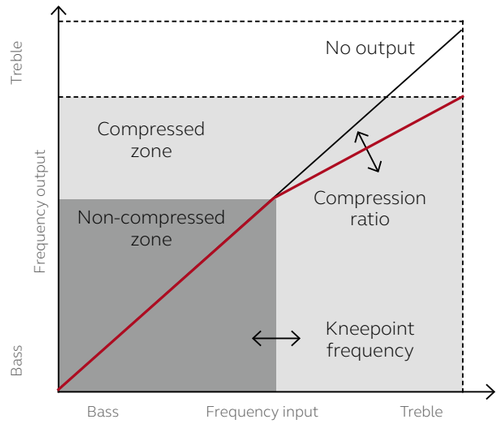
Sound Shaper

Role
Allows audibility improvement for high-frequency sounds by compressing them in a frequency zone where they can be heard.

User benefit
Improves audibility of speech cues that would otherwise be lost while maintaining best possible sound quality







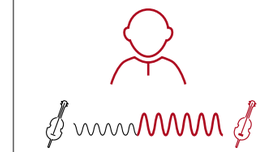
SOUND SHAPER SPECIFICATIONS		
Setting	Kneepoint frequency	Compression ratio
Very Mild	5000 Hz	1,33
Mild	4000 Hz	1,33
Moderate	3500 Hz	2
Strong	2500 Hz	2

RESOUND MODEL	CHOICE
RS ONE 9, RS ONE 7, RS ONE 5 / RS LiNX Quattro 9, RS LiNX Quattro 7, RS LiNX Quattro 5 / RS LiNX 3D 9, RS LiNX 3D 7, RS LiNX 3D 5 / RS ENZO Q 9, RS ENZO Q 7, RS ENZO Q 5 / RS Key 4, RS Key 3, RS Key 2	Off Very Mild Mild Moderate Strong

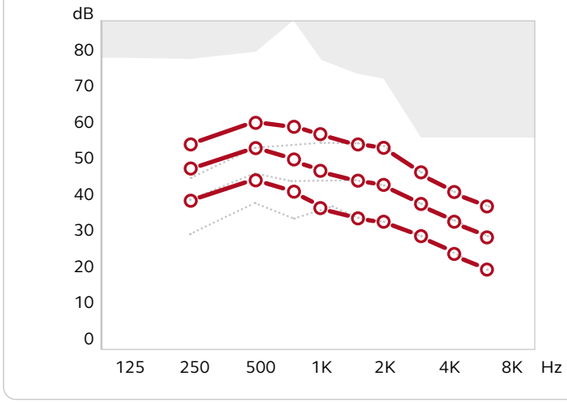
Low Frequency Boost

Role
Optimizes loudness for experienced users with severe and profound hearing losses.

User benefit
The hearing instrument provides the preferred sound quality.

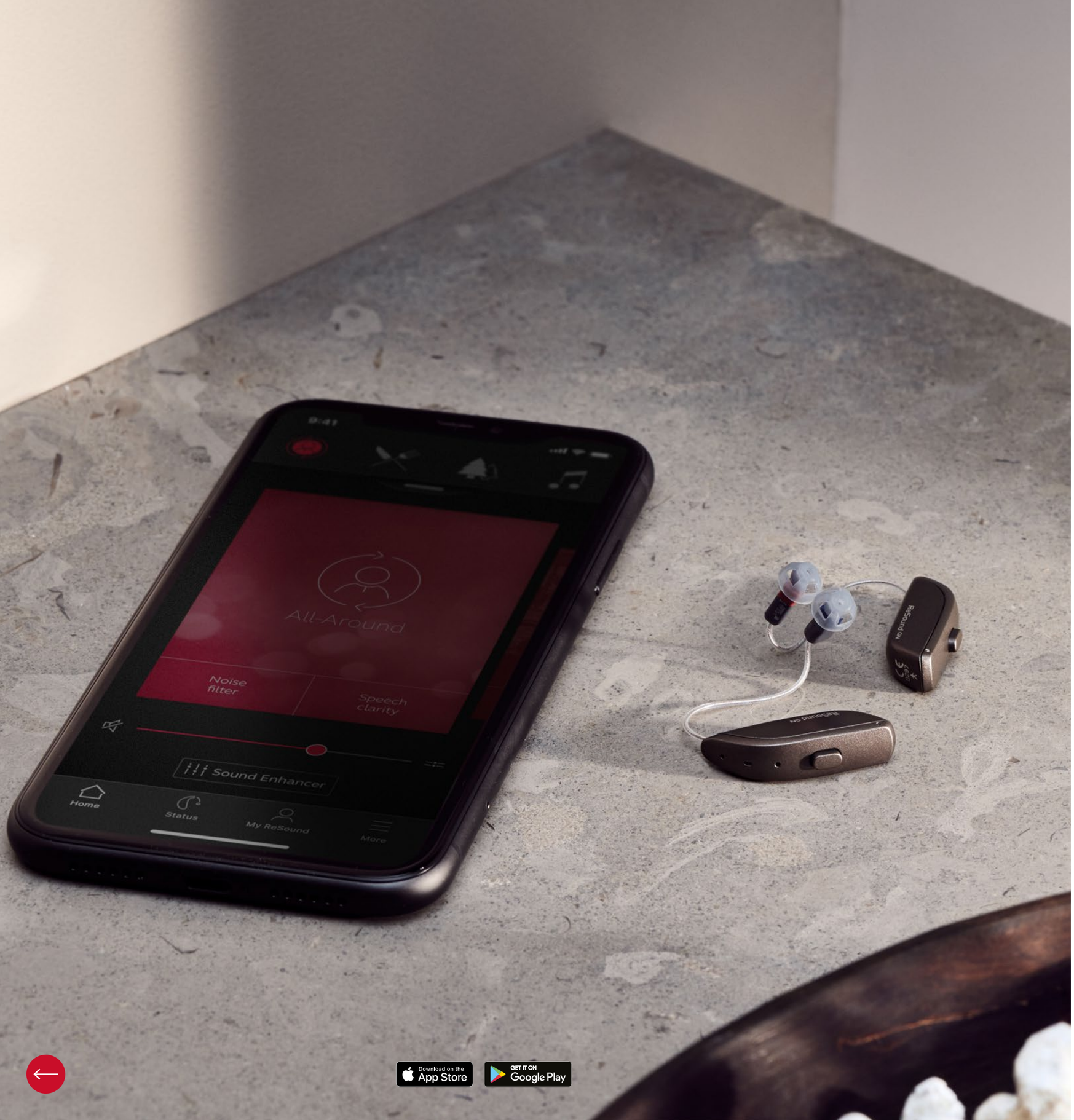


Users with severe and profound hearing losses often prefer more low frequency gain than typically prescribed. This helps meet sound quality preferences without increasing risk of feedback. Low Frequency Boost gives the fitter a quick and easy way to adjust the low frequency gains with three settings



LOW FREQUENCY BOOST SPECIFICATIONS				
	250 Hz	500 Hz	750 Hz	1000 Hz
Mild	3 dB	6 dB	3 dB	1 dB
Moderate	6 dB	9 dB	5 dB	2 dB
Strong	9 dB	12 dB	8 dB	3 dB

RESOUND MODEL	CHOICE
RS ONE 9 / RS LiNX Quattro 9 / RS LiNX 3D 9 / RS ENZO Q 9	Mild Moderate Strong
RS ONE 7 / RS LiNX Quattro 7 / RS LiNX 3D 7 / RS ENZO Q 7	Mild Moderate
RS ONE 5 / RS LiNX Quattro 5 / RS LiNX 3D 5 / RS ENZO Q 5 / RS Key 4, RS Key 3, RS Key 2	On / OFF



Extensive wireless connectivity

In today's hyper-connected world, more and more of the sounds people want to hear no longer come from a person nearby.

ReSound's proprietary 2.4GHz-based technology delivers the only integrated wireless ecosystem in the industry. For people with hearing loss, it opens a whole new world of information and entertainment. And it is closing the gap between how people with and without hearing loss can enjoy and access sound from virtually any audio source.

With our proprietary 2.4 GHz wireless technology, your clients can stream audio directly from iOS and Android™ devices to their ReSound hearing aids and stream TV audio with ReSound wireless accessories.

Our wide choice of wireless connectivity options enables your clients to enjoy:

- Direct audio streaming
- A robust connection
- No intermediary device
- Crystal clear sound

Made for iPhone | iPad | iPod

Works with android

Easy for you – and your clients

Easy to pair
Same pairing for all accessories, so you only need to learn it once
Individualized, private pairing
Install and forget

Easy to use
Intuitive user interface
Smart button layouts
One-click functionality

ReSound Micro Mic

- Hear speech clearly even when noise, distance or reverberation are issues
- Good to use when speaker is beside or behind the hearing aid wearer
- Drop control – mutes transmitted signal momentarily when dropped from heights above 75 cm
- Can be paired and shared with any number of ReSound wireless hearing aids
- Up to 25 meter range (clear line of sight)
- Talk time: Typical 10 hours
- Extremely small and discreet

TIP: The Micro Mic is also great to use on-the-fly. Just lay it down close to any loudspeaker to better hear the audio when away from home.

ReSound Multi Mic

- Hear speech clearly – even in noise, distance or reverberation are issues
- Good to use when speaker is beside or behind the hearing aid wearer
- Drop control – mutes transmitted signal momentarily wahen dropped from heights above 75 cm
- Can be paired and shared with any number of ReSound wireless hearing aids
- Up to 25 meter range (clear line of sight)
- Talk time:
  - Microphone mode: Typical 11 hours
  - Line-in mode: Typical 11 hours
  - Telecoil mode: Typical 7 hours
  - FM mode: Typical 10 hours
- Automatically switches to optimized table mode to enable pickup of multiple speakers when placed horizontally
- Direct streaming from almost any sound source, including FM (FM receiver required), telecoil and line-in

TIP: By plugging an FM Euro pin receiver into the Multi Mic, All ReSound wireless and ReSound Smart Hearing aids can pick up FM signals; no need to attach an FM receiver to the hearing aid itself.

ReSound TV Streamer 2

- Streams stereo sound
- Reconnects automatically if user moves out of range and returns within 5 minutes
- Can predefine balance between streamed sound volume and hearing aid volume in Aventa.
- Hearing aid wearers can adjust balance between right/left or streamed/hearing aid volume with either the Remote Control 2, the ReSound Control app or the ReSound Smart 3D app.
- Connect up to three streamers to one set of hearing aids, or one streamer to an unlimited number of ReSound wireless Hearing aids
- 7-meter range (clear line of sight)

DOLBY DIGITAL

ReSound Phone Clip+

- Streams phone conversations and has microphone to pick up and transmit user's voice
- Streams music in stereo
- Mute button to block out surrounding sounds
- Doubles as a basic remote control for hearing aids (volume and program)
- Provides state-of-the-art headset functionality if desired
- Has two simultaneous connections to Bluetooth® phones or music streamers
- 3-meter range (clear line of sight)

ReSound Remote Control

- Adjust volume on both hearing aids
- Change hearing aid programs
- Easy to handle, intuitive design with large buttons

ReSound Remote Control 2

- Control program and volume
- Adjust balance between right/left and streamed/hearing aid volume
- LCD display for easy visual reference
- Lock key to avoid accidental button activation while in purse or pocket
- Home key to take wearer back to default settings
- 3-meter range (clear line of sight)

WITH RESOUND HEARING AIDS, YOUR CLIENT CAN EASILY SWITCH BETWEEN

- Streaming from an iPhone, iPad or iPod touch
- Answering either of 2 telephones paired to the Phone Clip+
- Streaming from any of three streaming accessories (TV Streamer 2, Micro Mic, Multi Mic)

Apps

The ReSound Smart 3D app enables tele-audiology with ReSound Assist, and offers advice about getting used to hearing aids. The new design puts the most used functions on the front screen.

With the ReSound Control app and the ReSound Phone Clip+, adjusting volume or changing programs is as easy as a tap and a swipe.

The ReSound Smart 3D app and ReSound Control app are a free download at the App Store and Google Play.
See resoundpro.com/compatibility for more information about compatibility.

THE RIGHT APP FOR EACH HEARING AID		
HEARING AID	RESOUND SMART 3D APP	RESOUND CONTROL WITH RESOUND PHONE CLIP+
RS ONE 9, RS ONE 7, RS ONE 5	Yes + recommended	Yes
RS LiNX Quattro 9, RS LiNX Quattro 7, RS LiNX Quattro 5	Yes + recommended	Yes
RS LiNX 3D 9, RS LiNX 3D 7, RS LiNX 3D 5	Yes + recommended	Yes
RS ENZO Q 9, RS ENZO Q 7, RS ENZO Q 5	Yes + recommended	Yes
RS Key 4, RS Key 3, RS Key 2	Yes + recommended	Yes

WHY SPECIFIC HEARING AIDS WORK WITH SPECIFIC APPS

Before Bluetooth Smart was available, the Bluetooth signal was received by the Phone Clip+, and then transmitted to wireless hearing aids via ReSound's 2,4 GHz proprietary program. This is how ReSound Control app works

Bluetooth Smart is the Bluetooth low-energy protocol. Bluetooth Smart is integrated directly into ReSound wireless hearing aids, so the app on the smartphone can send information directly to the app. This is how ReSound Smart/Smart 3D app work.

Enabling remote fine-tuning functionalities via cloud technology, required building an entirely new platform in order for the app and the ReSound Smart Fit software to exchange information. This is why ReSound ONE, ReSound LiNX Quattro, ReSound LiNX 3D, ReSound ENZO Q, ReSound Key use the ReSound Smart 3D app.

INTEGRATED APP FEATURES	APPS		
	ReSound Control app*	ReSound Smart 3D app	ReSound Smart 3D app for Apple Watch
FUNCTIONS			
VOLUME AND PROGRAM			
Hearing aid program selection	•	•	•
Streamer selection	•	•	•
Hearing aid volume adjustments	•	•	•
ReSound streamer volume adjustments	•	•	•
SOUND ADJUSTMENT			
Sound Enhancer – bass/middle/treble adjustment		•	Only bass/treble
Quick buttons – shortcuts to sound optimisation		•	•
Sound Enhancer adjustments (speech focus, noise and wind noise reduction)**		•	•
Tinnitus Management adjustment		•	
Create favourite programs with or without geotags		•	
OTHER FUNCTIONS			
Program/Streamer name customisation by user	•	•	
See battery status		•	
Connection status	•	•	
Get inspiration and personalised information about hearing aid		•	
Find your hearing aid		•	

*ReSound Phone Clip+ is needed
** Available in ReSound ONE 9, ReSound LiNX Quattro 9, ReSound LiNX 3D 9, ReSound ENZO Q 9, ReSound ENZO 3D 9.

Sound Enhancer

- All adjustments available in the app are the same discrete steps as in ReSound fitting software.
- Adjustments made in the app are not saved in the hearing aid, but they can be saved in the app as a Favorite.
- Feature adjustments remain per program until reboot (open/close battery door)
- Tapping the 'Undo' button in the app will return the user to the default settings of that program.
- In the fitting software, feature values for left/right hearing aid must be identical. For Speech Focus this includes both beamwidth and Directional Mix values.

SOUND ENHANCER DEFAULT PER PROGRAM			
Program availability	**Noise**	**Speech**	**Wind**
All-around	◦	◦	◦
Restaurant	•	•	◦
Party	•	•	◦
Music	•	◦	◦
Traffic	•	◦	◦
Outdoor	•	◦	
Acoustic phone	◦	◦	◦
TC (in normal program)	•		
TC Phone (in normal program)	•		
DAI in normal program	•		

- Available with default settings
- ◦ Available in manual programs per feature if:
  Noise: Noise Tracker II not set to Per Environment
  Speech: Directionality set to adaptive (Autoscopee or Soft Switching)
  Wind: Wind Guard enabled

Direct Audio Streaming

ReSound was the first to introduce direct streaming from iOS and Android devices to a full portfolio of ReSound hearing aids, using Bluetooth® Low Energy. Our technology enables users to receive clear audio from traditional calls or video calls, enjoy music and media broadcasts, or listen to GPS directions, to name a few – in stereo, thereby in both ears, directly from their iOS and Android devices to ReSound hearing aids. Users can also rest assured that they will have the power they need not to miss a word or a tune.

5 advantages of Bluetooth Low Energy and ReSound hearing aids

BLUETOOTH LOW ENERGY AND RESOUND HEARING AIDS	**CLASSIC BLUETOOTH AND OTHER HEARING AIDS**
Remains in sleep mode constantly, except for when a connection is initiated; and uses less data transmission times, which results in lower power consumption.	Higher power consumption – in constant connection mode and it also uses more data transmission times.
Allows stereo signals to be streamed in both hearing aids (left/right) simultaneously.	Streams audio to one ear, and then splits and sends the signal to the other side.
Has proven stable connections, very low signal delay and less rebooting.	Can cause signal instability, with signal delay and more constant rebooting.
Better high frequency sound quality when paired with iOS devices, resulting in high sound quality – vital for music streaming.	Poorer high frequency sound quality as other hearing aids have limited frequency bandwidth when streaming.
Is compatible with the full product portfolio – from customs to RIEs and BTEs.	Limited options - is only compatible with a few hearing aid models.

Fitting Software

Co-designed by hearing care professionals, ReSound Smart Fit™ is your professional fitting tool and your gateway to a new era of teleaudiology. It features an intuitive workflow with easy access to fine-tuning controls, and it even offers seamless access to leading manufacturers' real-ear modules directly from the fitting software for quick, accurate real-ear measurements.

Both you and your clients will enjoy true wireless fitting sessions with Noahlink Wireless.

You'll be free from untangling cables, and your client won't need to wear any sort of intermediate device. It all adds up to a comfortable and unobtrusive fitting session – and a great, individualised client experience.

Intuitive wireless workflow with ReSound Smart Fit

Thanks to input from research trials and usability studies, hearing care professionals were at the heart of the new ReSound Smart Fit design. An improved fitting and navigation flow supports the way you want to work and provides faster access to the features you use the most. Fast processing during fitting means less time spent navigating through the fitting software.

Everything you need is available on-screen, including client details, hearing aid options and feature guidance.This leads to a more effective and efficient fitting experience, all while leaving a great first impression with your clients.

Easier and more individualised fitting

ReSound Smart Fit fitting software also helps you give your clients a more accurate and comfortable fit, from the first fit and beyond.

The new and unique Personalised Feature Prescriptions in ReSound Smart Fit are guided by peer-reviewed research on how to optimize advanced sound processing features to give you a better starting point with ReSound ONE's feature settings, to help decrease the need for fine-tuning. The ability to adjust gain percentage helps you create the most comfortable first fit for your clients. A better start can lead to more client satisfaction and less returns.

The ReSound Smart Fit flow is more intuitive than ever with Automatic Receiver Detection. When you connect ReSound ONE, the receiver is detected and the receiver specific calibration data is applied to the fitting. ReSound Smart Fit guides you through the receiver detection process to make your fittings more efficient.

Get more with one system

One software installation is all you need to fit all ReSound hearing aids. Both ReSound Aventa and ReSound Smart Fit are included in the installation, so you have the right software for any ReSound hearing aid. When you connect a hearing aid, the Smart Launcher automatically detects the product and opens the appropriate fitting software module. From there, you get access to all history and fitting information. With easy access to previous data from your clients, it is easy to transfer between legacy hearing aids and newer product technology.

Noahlink wireless

Connecting seamlessly with ReSound Smart Fit, Noahlink wireless is the industry standard fitting interface and works with any wireless ReSound hearing aid. If you have an Airlink 2, a free software upgrade can give you the full functionality of Noahlink wireless.

Integration with more systems

ReSound Smart Fit also integrates with Otometrics, Interacoustics and MedRx equipment, so you can do real-ear measurements quickly and efficiently, without opening separate software.

The AutoREM features and Inter Module Communication Protocol 2 (IMC2) compatibility in ReSound Smart Fit 1.2 or later require Noah Version 4.8 (or higher). IMC2 allows direct communication between REM modules and Noah. There are currently three compatible real ear systems.

MANUFACTURER	REM MODULE NAME	VERSION
OTOmetrics	OTOsuite	4.82.00 (or higher)
Interacoustics	Affinity Suite	2.11.0 (or higher)
Interacoustics	Callisto Suite	1.9.0 (or higher)
MedRx	Avant REM	3.2 (or higher)
Auditdata	Primus	2.6.0.0 (or higher)
Sivantos	Unity 3	5.5.0 (or higher)

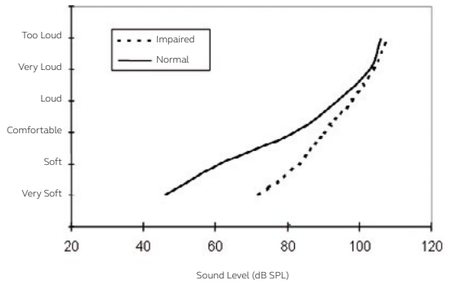
Manufacturer and module compatibility is subject to change. Please contact customer suppor for the latest information.

Compatible with the following hearing aids

ReSound ONE
ReSound LiNX Quattro
ReSound ENZO Q
ReSound LiNX 3D
ReSound Key

The perfect balance for optimal gain and compression

Wearers of hearing aids need acoustic information which is as free from distortion as possible. With its combination of advanced technology and carefully selected compression parameters, ReSound's Wide Dynamic Range Compression (WDRC) keeps distortion to a minimum. However, to achieve the best results, prescribing the right hearing aid gain is essential. During fitting, the Audiogram+ algorithm helps you achieve the optimal hearing aid gain for all your clients with mild to profound hearing loss.



The goal of our hearing aids is to give your clients access to acoustic information so they can hear, understand, and speak to the people around them. We believe the human brain is the best processor of speech in noise, so we try to make sure that sound reaches the auditory system with minimal distortion and loss of acoustic cues. From the selection of components to sound processing and fitting, this is our guiding principle in all aspects of hearing aid design.

Based on the work of Villchur (1973), ReSound pioneered WDRC, the world's first system that accounted for abnormal loudness growth by applying progressively less gain as input levels increased. To provide a reliable starting point for the WDRC, we developed a fitting algorithm based on psychoacoustic measurements of the increase in loudness. This meant that, after years of clinical experience and thousands of fittings, we were able to refine our threshold-based fitting algorithm. And Audiogram+ was born.

Loudness normalization

The Audiogram+ target prescription is grounded in loudness normalization – although it is not the gains you prescribe that realize this objective. To achieve loudness normalization, we need to apply gain that is dependent on frequency and input level so that the hearing aid wearer perceives the loudness of narrowband signals in a similar way to someone with normal hearing. Loudness normalization assumes that loudness summation will be similar for someone with hearing loss and someone with normal hearing, so real-world sounds will be loud enough for the wearer. However, hearing aid wearers tend to prefer less gain than someone following a loudness normalization rationale would prescribe (Smeds, 2006; Keidser & Grant, 2003).

Because of this, Audiogram+ prescribes less gain than a strict loudness normalization rationale would indicate. Compared to the generic NAL-NL 2 fitting rule, which aims to maximize speech understanding, Audiogram+ tends to prescribe several dB less insertion gain depending on frequency and hearing loss configuration.

Influence of audiometric data

Audiogram+ calculates insertion gain targets for narrowband inputs of 50, 65 and 80dB SPL at 11 audiometric octave and inter-octave frequencies from 125 Hz to 8 kHz. Apart from the hearing threshold levels at individual frequencies, Audiogram+ takes four audiometric factors into consideration:

1. Severity of hearing loss
2. Configuration of hearing loss
3. Individual Uncomfortable Loudness (UCL)
4. Whether the hearing loss has a conductive component

Hearing loss severity

For severe-to-profound hearing loss, there is less high-frequency emphasis and more low-frequency gain in the prescribed response than for mild-to-moderately severe loss. These empirically derived accommodations for severe-to-profound hearing loss are consistent with the observations of other investigators. For example, Byrne et al (1990) estimated an optimal frequency response and measured insertion gain at the preferred volume with this response for a number of people with severe-to-profound hearing loss. They found that the optimum low-frequency gain was higher than that prescribed by the NAL formula, and that preferred gain was about 10dB higher. Audiogram+ compensates for hearing loss severity with a low-frequency gain increase of 4 to 5dB and a high frequency reduction of 4 to 5dB compared to a prescription not corrected for severity. Although the exact conditions imposed on the Audiogram+ formula are more complicated, these changes are generally applied when the PTA exceeds 65dB HL.

Hearing loss configuration

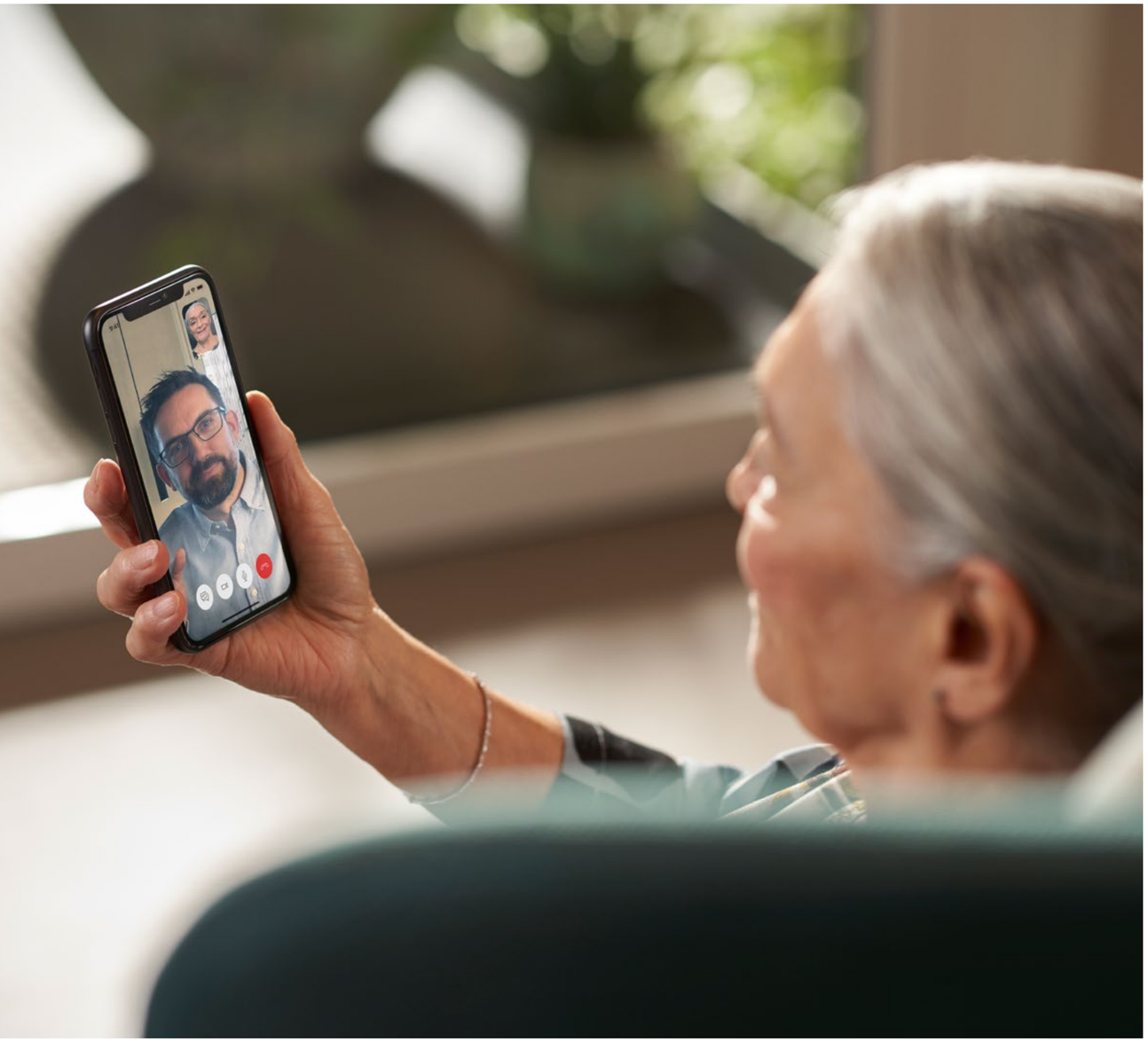
The ability of hearing aid wearers to make use of high frequency speech information has been observed to decrease as hearing threshold levels rise above 60dB HL (Hogan & Turner, 1998). An explanation for this could be the presence of "dead regions". The probability of a high-frequency dead region increases sharply when the high-frequency hearing threshold exceeds 80dB HL. Audiogram+ avoids prescribing excessive high-frequency gain in cases of steeply sloping high-frequency hearing loss.

Uncomfortable loudness levels (UCL)

Some hearing aid wearers may have a lower or higher tolerance for loud sounds than that predicted by their hearing threshold levels. If you enter UCL data into Aventa software, it will adjust the gain to accommodate the individual's dynamic range into the prescription. The effect on the targets corresponds to about a third of the difference between the predicted and actual UCLs. If the measured UCL is lower than predicted, targets are reduced, and if higher, targets are increased. Although the ReSound system includes compression limiting at the output stage, there is no prescription for MPO in Audiogram+. Instead, MPO is prescribed according to the method described by Dillon (2001).

Hearing aid use

According to Olsen et al, 1999, and Keidser & Grant, 2003, experienced hearing aid wearers perceive loudness and gain preferences differently to inexperienced wearers, at least for those with moderate-to-severe hearing loss. Audiogram+ can account for this preference if you select "First-time user" on the Aventa fitting software "Patient" page. This correction decreases high-frequency gain by about 6dB relative to the targets for experienced wearers, and increases the high-frequency compression ratio slightly. For wearers who are sensitive to high-frequency gain, the "Comfort" wearer profile results in a gain reduction from about 10% of the hearing threshold level at 2kHz to about 25% of the hearing threshold level at higher frequencies.



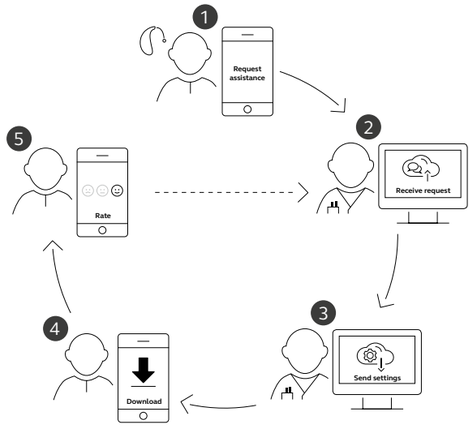
Individualised experiences for excellent outcomes

ReSound Assist and new ReSound Assist Live make it even easier to connect with your clients, especially during the critical adaptation phase after their first fit. Together you can agree to supplement their planned clinic visits with ReSound Assist Live appointments and offer planned adjustments or receive adjustment requests based on real-life listening situations through ReSound Assist. Each client will enjoy a personal and individualised program of care. Fewer barriers add up to seamless guidance and all the care they need when they need it most, which can ultimately result in better outcomes and fewer returns.

With ReSound Assist and ReSound Assist Live, you have two powerful ways to serve and engage with your clients to provide better care. They make ReSound Smart Fit the only fitting software with comprehensive live video (synchronous) and remote adjustment (asynchronous) options. You'll be able to deliver more accessibility and the best possible fitting, counselling and support for your clients in the most convenient way possible for both of you.

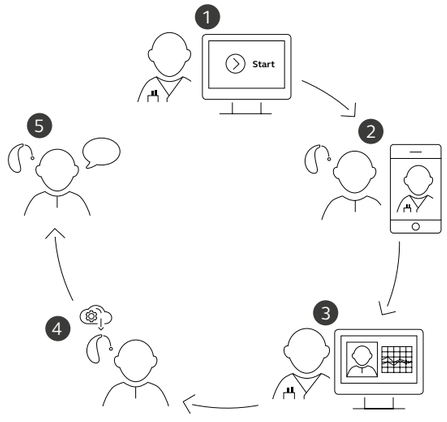
Everything you do with ReSound Assist and ReSound Assist Live takes place via ReSound Smart Fit. It's as easy as logging on to GN Online Services, opening the software and working the way you always do. Just with the extra convenience of cutting-edge teleaudiology.

ReSound Assist



1. The client requests assistance via the ReSound Smart 3D app*
2. You receive the request via the ReSound Smart Fit software*
3. You send updated settings and/or messages
4. The client receives updated settings or messag-es, and downloads the settings wirelessly to their hearing aids
5. The client sends a rating of the new settings

ReSound Assist Live



1. You initiate the video call via the ReSound Smart Fit software to start the appointment
2. The client answers the video call
3. You adjust the client's hearing aid settings
4. The client receives the new settings
5. You and the client evaluate the new settings together or your client sends a rating later

* You can also send new settings without a request from the client.

ReSound Assist and new ReSound Assist Live are available for ReSound ONE, ReSound LiNX Quattro, ReSound LiNX 3D, ReSound ENZO Q and ReSound Key.

Tinnitus

About 10% of the adult population has tinnitus, or ringing in the ears. Almost 80% of tinnitus sufferers also have hearing loss.

Tinnitus is a very individual condition requiring a tailored approach, but a combination of counselling and sound therapy is often successful. ReSound offers therapeutic sounds for tinnitus relief built into our hearing aids, and a complete array of counselling materials to help you work together with your clients to address their needs.

Tinnitus Management

While sound therapy is widely accepted as an effective way of managing tinnitus, there is no one-size-fits-all approach. Most clients experience the best effect from broadband stimuli such as white noise; but studies show that some prefer other sounds, such as modulating and/or filtered noise. Furthermore, preferences often vary depending on time of day, mood or environment.

Some clients respond best when they can adjust parameters so they feel in control of their therapy. Others prefer to 'set it and forget it' so their therapy and tinnitus stay very much in the background.

This means that audiologists need a flexible sound therapy toolbox if they are to help each client find the best way to manage their tinnitus.

ReSound hearing aids can be fit as combination devices, with both sound amplification and tinnitus sound therapy. Either can be deactivated during fitting so the devices can behave exclusively as a tinnitus sound generator or as a hearing aid that treats tinnitus using amplification only.

Tinnitus Sound Therapy

White Noise Generator

Most literature agrees that broadband stimulus is the most effective form of sound therapy because it activates the greatest number of neurons in the brain. The ReSound Tinnitus Sound Generator (TSG) default white noise is therefore set to a broadband filter. It has the flexibility of low and high cut controls to provide more individualized comfort.

The TSG frequency bandwidth is meant to be individually set during fitting to provide listening comfort and optimal relief from tinnitus. Clients using the ReSound Smart app can also adjust the sound with low- and high-cut controls to adjust the sound whenever they wish.

Within Smart Fit, the hearing aid's volume button should be programed to either adjust the volume of amplification or the volume of the tinnitus sound generator.

SETTING	RANGE
Low-cut filter	125Kz - 2kHz
High-cut filter	2kHz - 7kHz

Amplitude modulation (AM)

This is a fluctuation in the level of the noise signal while all other spectral components remain uniform. AM attenuation is randomized so there is no audible periodicity, or a repeating pattern of sounds.

AM and AM speed are comfort features. They should be adjusted as needed on a case-by-case basis.

Once AM is activated, you have three options to control how often fluctuations occur in the noise:

- SLOW (2 SEC.)
- MEDIUM (4 SEC.)
- FAST (8 SEC.)

ReSound Smart Fit fitting software comes with three AM attenuation options:

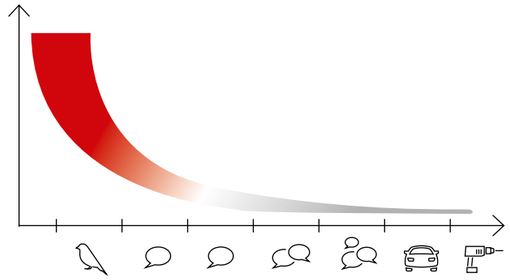
ATTENTUATION OPTIONS	E.G PRO-GRAMMED VOLUME OF TSG: 65DBSPL	SMART APP TSG
Mild (-6dB)	65 dBSPL - 59 dBSPL6	Same
Moderate (-10dB)	65 dBSPL - 51 dBSPL6	Same
Strong (-14dB)	65 dBSPL - 51 dBSPL	Same

Synchronization

For hearing devices with Ear-to-Ear capabilities, Synchronized Amplitude Modulation improves comfort by synchronizing the Amplitude Modulation to both hearing aids as the wearer moves through different listening environments. Synchronized Environmental Steering™ automatically adjusts the volume of the sound generator in each hearing aid independently.

Environmental Steering

This adjusts the volume of the sound generator according to the seven listening environments defined in the Environmental Classifier. Tinnitus tends to be more intrusive when it's quiet so, as a rule of thumb, the volume of the sound generator will go up in quiet environments and fall in speech-heavy or noisy environments.



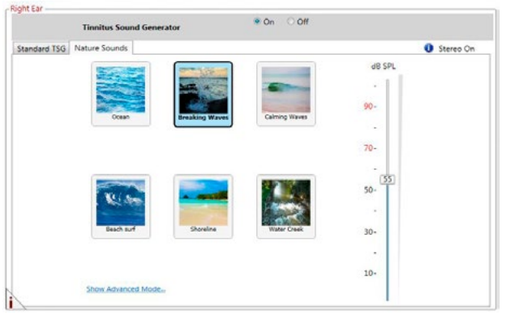
Environmental Steering serves a number of purposes.

- It can help avoid the potential risk of completely masking the tinnitus for users who do not fully understand the aim of sound therapy (or tinnitus treatment) or who are not familiar with a manual volume control. Masking the tinnitus does not allow for habituation, as one cannot habituate to what is not audible, and this can be detrimental in the tinnitus treatment.
- It ensures that the TSG signal does not interfere with important information, such as speech.
- Taking away the need for a manual volume control can put less emphasis on the device, and for some, may help reduce the attention that is paid to the tinnitus. For those who react better to having control, a manual volume control can be activated. For those who respond best to even more control, the ReSound Smart app and ReSound Smart 3D app provide control options to also adjust pitch and modulation.

Nature Sounds

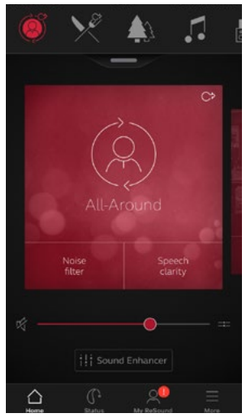
Our studies found that the most popular natural sounds for sound therapy are water and air. Nature Sounds are six sounds inspired by water, such as breaking waves and beach surf. The sounds are synthesized using a patent-protected technique to sound like natural water sounds. They can be played directly from the hearing aids without the need for an external device.

Nature Sounds can be activated per program during fitting with ReSound Smart Fit fitting software. Your client can make further adjustments with the ReSound Smart app.

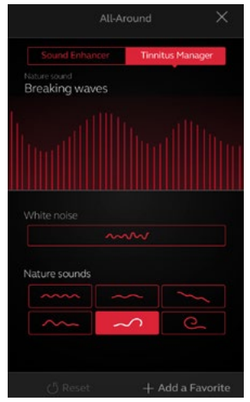


ReSound Smart 3D app

People who use ReSound ONE, ReSound LiNX Quattro, ReSound LiNX 3D, ReSound ENZO Q and ReSound Key can use the Tinnitus Manager within the ReSound Smart 3D app to personalise their Tinnitus Sound Generator if you have activated it in the ReSound Smart Fit software. If the Tinnitus Sound Generator was activated during a fitting, the ReSound Smart 3D app will display the tinnitus symbol in the top right-hand corner of the program button.

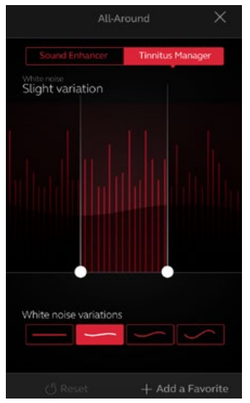


Your client can then use the app to make further adjustments to the TSG and save their new settings in 'favorites'. These are also saved in Detail view so you can refer to them in counseling sessions.



If you select standard TSG for a program, your client can adjust the pitch and modulation in the ReSound Smart 3D app. They can save their new settings as a favorite program.

LEVELS OF PITCH ADJUSTMENT:	
Low	Off, 500 Hz, 750 Hz, 1000 Hz, 1500 Hz, 2000 Hz
High	2000 Hz, 3000 Hz, 4000 Hz



If you activated Nature Sounds for a particular program during fitting, your client will be able to switch between white noise and any of the six sounds inspired by water. Selecting white noise enables adjustment of pitch but not modulation.

In the table below you can see a summary of ReSound's tinnitus sound therapy options.
Our latest premium models give you the opportunity to offer your tinnitus clients varied, flexible sound therapy.

FEATURE OVERVIEW	TSG WHITE NOISE GENERATOR	TSG SYNCH	TSG NATURE SOUNDS	TSG ENVIRON-MENTAL STEERING	SMART 3D APP TSG	RELIEF APP	FITTING SOFTWARE
RS ONE 9 RS ONE 7 RS ONE 5	•	•	•	•	•	•	•
RS LiNX Quattro 9 RS LiNX Quattro 7 RS LiNX Quattro 5	•	•	•	•	•	•	•
RS ENZO Q 9 RS ENZO Q 7 RS ENZO Q 5	•	•	•	•	•	•	•
RS Key 4 RS Key 3 RS Key 2	•	•	•	•	•	•	•

Learn to manage your tinnitus with the ReSound Relief app

ReSound Relief uses a combination of sounds and relaxing exercises that aim to distract your brain from focusing on tinnitus. Over time the brain learns to focus less on the tinnitus.

The app lets you manage your personal library of soundscapes to be used for sound therapy, one of the most common therapies to minimize the effects of tinnitus. Either listen to the default soundscapes or create your own from a collection of more than 50 High Definition environmental sounds and small pieces of music. To help you cope with your tinnitus, Relief also provides different activities to relax and get better sleep such as guided meditations, breathing exercises and imagery.It also includes a Learn section to teach you more information about what is tinnitus, what are the causes of tinnitus, common therapies as well as tips to help you better deal with the effects of your tinnitus

ReSound Relief app home screen

The large bubbles represent soundscapes, just tap on them and enjoy the sound therapy. The + button allows you to create your own soundscapes.

Create your own soundscapes

Create your own soundscapes by combining up to 5 different sounds. Choose from High Definition environmental, musical and therapeutic sounds, then tweak the volume of each sound to create the soundscape that better helps your tinnitus.

Personalized weekly plans

With My Plan, under My Relief section, you can create a personalized plan to teach you how to manage your tinnitus. Just answer some questions about your tinnitus and the issues that bother you the most, and ReSound Relief will create a weekly plan to help you train managing your tinnitus.

Moreover, the app will track your usage and progress towards your weekly goals, so you can discuss them with your hearing care professional in order to obtain better guidance on how to manage your tinnitus.

ReSound Relief is compatible with any smartphone (iOS and Android) and doesn't require hearing aids. The ReSound Relief app is available as a free download on both the App Store and Google Play. For more information visit the ReSound Relief website: resound.com/reliefapp

At ReSound we believe life is lived best when it's a natural, effortless flow. This means we take anything that holds you back to heart and will always strive to help you connect to a life without limitations. We have devoted the past 150 years to advancing lives through technical innovations that, inspired by our Organic Hearing philosophy, place you at the centre of everything we do, because hearing and hearing care is as individual as a fingerprint.

facebook.com/resoundhearing twitter.com/resoundglobal linkedin.com/company/resound

Worldwide Headquarters
GN Hearing A/S
Lautrupbjerg 7
DK-2750 Ballerup
Denmark
Tel.: +45 4575 1111
resound.com

United Kingdom
GN Hearing UK Ltd.
Kirtlington Business Centre
Portway, Kirtlington
Oxon OX5 3JA
Tel.: +44 1869 352 800
resound.com

Australia
GN Hearing Australia Pty Ltd.
Gate C, 19-25 Khartoum Road
Macquarie Technology Park
Macquarie Park NSW 2113
Tel.: (free) 1800 658 955
resound.com

New Zealand
GN Hearing
New Zealand Limited
Ground Floor, North Entrance
4 Fred Thomas Drive
Takapuna, Auckland, 0622
Tel.: (free) 0800 900 126
resound.com

Singapore
GN Hearing Pte. Ltd.
2 Kallang Avenue
#07-19 CT HUB
Singapore - 339407
Tel: +65 6320 9388
resound.com

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