

User guide

Beltone Direct TV Link 2

Beltone

Welcome

Congratulations on your purchase of a Beltone Direct TV Link 2. TV Link 2 will provide you with high quality streamed audio from your TV, HiFi stereo, personal computer or similar device directly to your hearing instruments.

Please read this manual carefully to fully benefit from the TV Link 2. Ask your hearing care professional if you have any questions.

For further information you can also visit the www.beltone-hearing.com web site.

For your safety, carefully read the chapter Important Information, on pages 28-29

Model: SAS-3

FCC ID: X26SAS-3

Statement:

This device complies with part 15 of the FCC rules and ISED rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference.
2. This device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC rules and ISED rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

Increase the separation between the equipment and receiver.

Connect the equipment into an outlet on a circuit different from the receiver is connected.

Consult the dealer or an experienced radio/TV technician for help.

Changes or modifications can void the user's authority to operate the equipment.

Intended use

TV Link 2 is intended to enable Beltone wireless hearing instrument users to better follow TV or other audio programs. The essential performance of the TV Link 2 is to transfer signals from a TV set or other audio device to a Beltone wireless hearing instrument.

This product is in compliance with the following regulatory standards:

In EU : The device conforms to the Essential Requirements according to - Annex I of Council Directive 93/42/EE C for medical devices (MDD).

Hereby GN Hearing A/S declares that the radio equipment type SAS-3 is in compliance with Directive 2014/53/EU. The full text of the EU declaration of conformity is available at the following internet address: www.beltone-hearing.com/en/declarations

In US: FCC CFR 47 Part 15, subpart C.

Other identified applicable international regulatory requirements in countries outside EU and US. Please refer to local country requirements for these areas.

Model: SAS-3

IC: 6941C-SAS3

This Class B digital apparatus complies with Canadian ISED.

Cet appareil numérique de la classe B est conforme à la norme ISED du Canada.

Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

L'exploitation est autorisée aux deux conditions suivantes: (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

In JP:

This device has been granted a designation number by Ministry of Internal Affairs and Communications under “Ordinance concerning Technical Regulations Conformity Certification etc. of Specified Radio Equipment (特定無線設備の技術基準適合証明 等に関する規則)” Article 2-1-19 “This device should not be modified (otherwise the granted designation number will be invalid)”.

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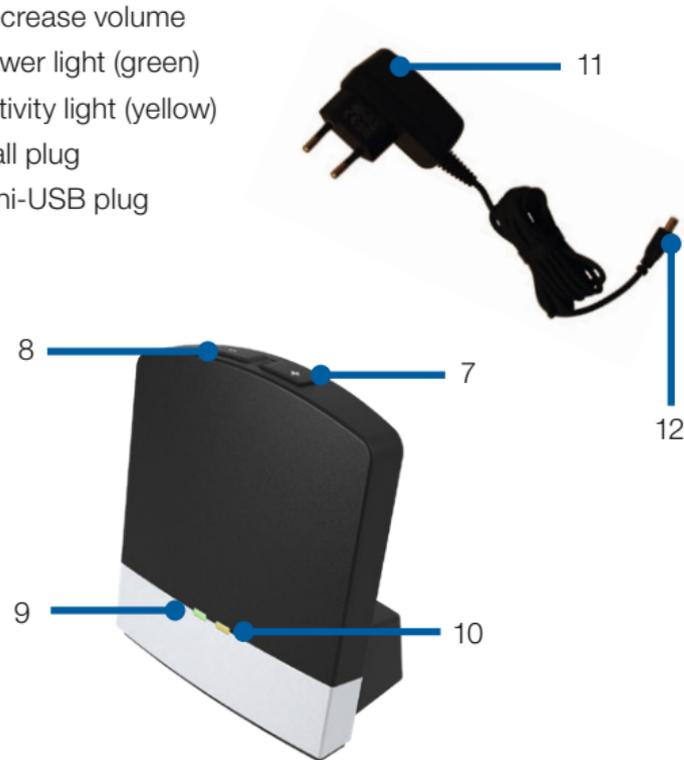
Description

- 1 Micro-USB power socket
- 2 Pairing button
- 3 Mono/stereo switch
- 4 Analogue mini-jack audio input
- 5 Optical (Toslink) audio input
- 6 Coaxial audio input



8

- 7 Increase volume
- 8 Decrease volume
- 9 Power light (green)
- 10 Activity light (yellow)
- 11 Wall plug
- 12 Mini-USB plug



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Getting Started

Installing the TV Link 2

Depending on your TV, HiFi stereo, computer or other audio set-up, the installation of TV Link 2 may be done in several ways described in the following section. The following steps will guide you through the pairing and connecting process, which can be easily accomplished by almost anyone. Start by connecting cables between the TV Link 2 and the audio source and finish by pairing the TV Link 2 to your hearing instruments.



The TV Link 2 supports both analogue and digital audio input. Please read the following sections for information about supported audio formats and how to connect the TV Link 2 to audio sources.

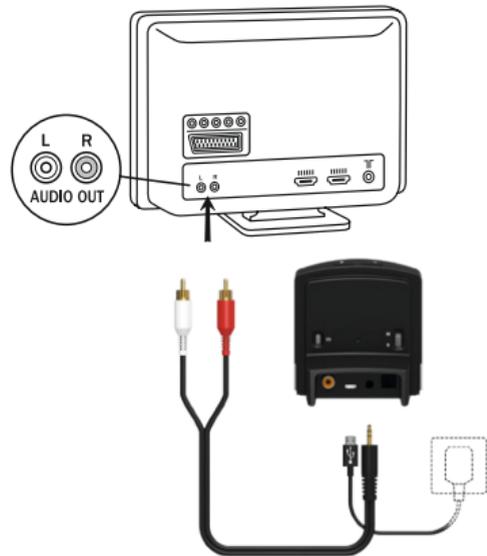
Connecting the TV Link 2 to an analogue audio source (E.g. TV or HiFi stereo)

1. Connect the power supply to the wall socket and insert the cable into the micro-USB socket on the TV Link 2
2. Insert the male stereo mini-jack on the audio cable into the female stereo mini-jack input on the TV Link 2 (4 on page 8)
3. Plug the other end audio cord into the "AUDIO OUT" terminals on the audio source

4. The "AUDIO OUT" is usually marked "L – R" for left and right, and can usually be found on the back of the audio source



Note: With this installation, most audio sources will send sound to both hearing instruments and additional speakers connected to the audio source simultaneously. On some audio sources you can adjust the balance between the AUDIO OUT and the speakers – consult your audio source manual for instructions.



Alternative analogue audio cable installations:

If it is not possible to connect the TV Link 2 to the AUDIO OUTPUT of the audio source using the red and white plugs, the following installation alternatives can be used:

Mini-jack adaptor:

1. Connect the power supply to the wall socket and insert the cable into the micro-USB socket on TV Link 2
2. Insert the male stereo mini-jack on the audio cable into the female stereo mini-jack input on the TV Link 2 (4 on page 8)
3. Connect the stereo mini-jack adaptor to the red and white plugs at the other end of the audio cable
4. Plug the stereo mini-jack adaptor into the audio sources' "HEADPHONE" output terminal, or alternatively into your computers' audio terminal



Note: The HEADPHONE output terminal is usually located on the side or front of the audio source. When using the HEADPHONE terminal, usually only the person wearing the hearing instruments will hear the sound, and audio source speakers are muted.

If muted speakers are not desired, please refer to the first installation, or the one on the following page. Your audio source may support speakers and HEADPHONE being on simultaneously; check your audio source manual for instructions.



Scart adapter:

1. Connect the power supply to the wall socket and insert the cable into the micro-USB socket on TV Link 2
2. Insert the male stereo mini-jack on the audio cable into the female stereo mini-jack input on the TV Link 2 (4 on page 8)
3. Connect the scart adapter to the red and white plugs at the other end of the audio cable
4. Plug the scart adapter into the audio source's scart terminal

 *Note: The scart output terminal is usually located on the back or side of the audio source. Please consult the manual of your audio source if additional configuration of the scart output is needed.*



Connecting the TV Link 2 to a digital audio source (E.g. TV or HiFi stereo)

 *The TV Link 2 supports both analogue and digital audio input. When using digital audio input the following formats are supported:*

Stereo PCM

- Sample rate: Up to 192 kHz
- Sample resolution: Up to 32 bit

Dolby Digital

- Channels: Max 5.1
- Bitrate: 32 kbs to 640 kbs
- Sample rate: 32, 44.1 and 48 kHz

Note: Dolby Digital Plus (requiring an HDMI interface), Dolby True-HD, Dolby Pro Logic, Dolby Digital EX, Dolby Digital Surround EX, and AAC (Advanced Audio Codec) are not supported.

Using the optical (Toslink) audio input

1. Connect the power supply to the wall socket and insert the cable into the micro-USB socket on TV Link 2
2. Insert one of the plugs on the optical audio cable into the optical audio input socket (5 on page 8) on TV Link 2

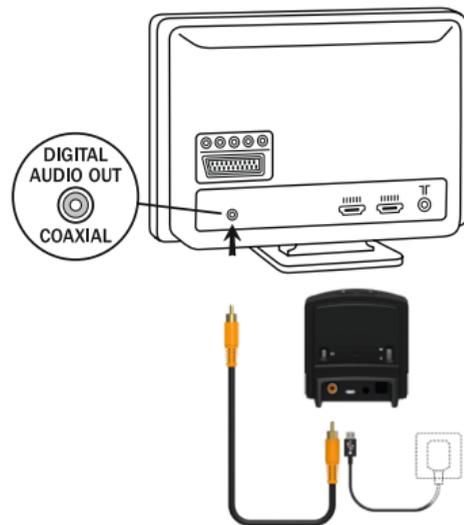
Note: Most optical cables are delivered with a small protective cap to protect the tip of the cable. Please remove this protective cap before inserting the cable

3. Plug the other end of the optical audio cable into the “Digital Audio Out/Optical” on your audio source



Using the coaxial audio input

1. Connect the power supply to the wall socket and insert the cable into the micro-USB socket on TV Link 2
2. Connect one of the plugs on the coaxial audio cable to the coaxial plug (6 on page 8) on TV Link 2
3. Plug the other end of the coaxial audio cable into the “Digital Audio Out/Coaxial” on your audio source



Pairing to your hearing instruments



Note! The following information is intended primarily for your hearing care professional, who in most cases will complete the necessary tasks before the TV Link 2 can be used with your hearing instruments. However, the process is designed to be simple and most people can do it themselves.

It is possible to pair up to three streaming devices - e.g. two TV Links and one Beltone Direct Personal Audio Link (optional accessory) - with a given pair of hearing instruments. Therefore channel 1, 2 or 3 must be selected when starting the pairing process.

Pairing the TV Link 2 in channel 1

1. Make sure that the TV Link 2 power supply is plugged into a wall socket and that the green light indicator on the front of the TV Link 2 (9 on page 9) is ON. Your hearing instruments must be OFF - open the battery door
2. Press the pairing button on the TV Link 2 (2 on page 8) once. The yellow light indicator on the front of the TV Link 2 (10 on page 9) will now blink once every 2 seconds to indicate that the TV Link 2 is ready to be paired in channel 1. Your TV Link 2 will remain in pairing mode for 20 seconds

3. While pairing mode is activated, close the battery doors of both hearing instruments and make sure they are ON. A successful pairing will be indicated by an audible melody being played in both hearing instruments. You are now ready to use the TV Link 2

Pairing the TV Link 2 in channel 2

1. Press the pairing button twice. The yellow light indicator on the front of the TV Link 2 will now blink twice every 2 seconds to indicate that it is ready to be paired in channel 2
2. While in pairing mode close the battery doors on the hearing instruments

Pairing the TV Link 2 in channel 3

1. Press the pairing button three times. The yellow light indicator on the front of the TV Link 2 will now blink three times every 2 seconds to indicate that it is ready to be paired in channel 3
2. While in pairing mode close the battery doors on the hearing instruments

Pairing blinking pattern:

Pairing button pushes	Light indicator pattern	Channel
1	① ① ① ①	1
2	①② ①② ①② ①②	2
3	①②③ ①②③ ①②③ ①②③	3

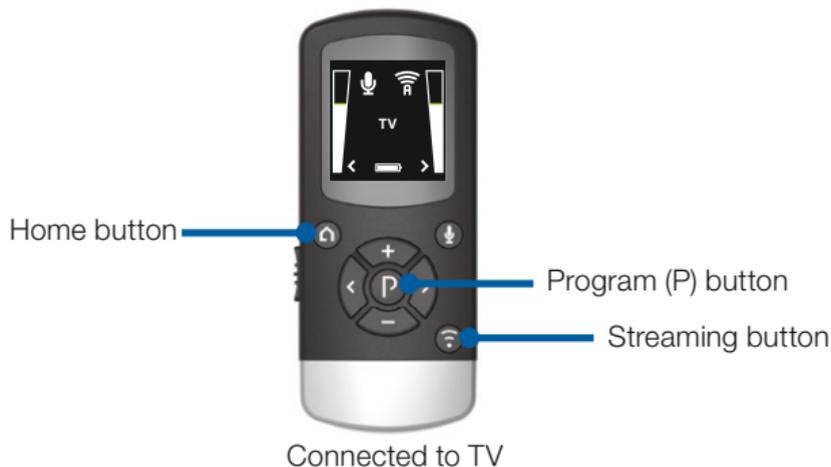
Start and stop streaming

Turn on the TV, HiFi Stereo, computer or other audio device connected to TV Link 2. Make sure your hearing instruments are turned on as well. Streaming may be started in one of two ways.

1. Press and hold the push button on either hearing instrument for about three seconds. This must be done separately on both hearing instruments, in order to hear streamed audio in both ears, unless your hearing instruments have been set up with Ear to Ear synchronisation. Once TV Link 2 has been connected, an audible melody will play in your hearing instruments and will be followed by the streamed sound
2. If you have a Beltone Direct Remote Control (optional), simply press the streaming button on this Remote Control. Once the hearing instruments connect to TV Link 2, an audible melody will play in both ears to confirm the presence of streamed audio and a streaming icon will appear in the display. The streamed sound can now be heard in your hearing instruments

Start streaming on a 2nd or 3rd TV Link 2 unit

If more than one TV Link 2 device is available, you may press the streaming button on the Remote Control a 2nd or 3rd time, depending on which TV Link 2 device you want to listen to.



Up to 3 TV Link 2 units are initially labeled by letter designator A, B or C, and the streaming device in use is shown on the Remote Control display.

If you do not have a Remote Control, press and hold the push button for about 3 seconds on the hearing instrument a 2nd or 3rd time to access the 2nd or 3rd streaming unit.

Stop streaming

Shortly press the push button on either hearing instrument. This will cancel streaming on the side pressed and return to the last program used.

Note: If your hearing instruments have Ear to Ear program synchronisation, enabled a press on one side will take both hearing instruments back to the last program used.

With the Beltone Direct Remote Control (optional) you just have to press the “P” button, located in the center of the key pad. This will return the hearing instruments to the last program used. You may also press the home button to return to your default settings.

If you are using the telephone with Beltone Direct Phone Link 2 or Auto-Phone, streaming from the TV Link 2 will be temporarily disrupted. When you have ended your phone call, streaming will resume.



Note! You may get out of range (>7m) from your TV Link 2. If you get back in range within 5 minutes, your hearing instruments will automatically reconnect and continue streaming.

Controls

Adjust volume

The TV Link 2 is designed to provide a comfortable listening level from the moment it is activated. However, for some devices or listening environments it may be desirable to adjust the listening volume, and doing so can be accomplished in a variety of ways. Keep in mind that volume adjustments on the TV Link 2 apply to the streamed signal only, not the volume of normal environmental sounds.

Use the “+” and “-” keys (7 and 8 on page 9) to adjust volume to a comfortable level. Make sure that your hearing instruments are comfortably adjusted before you change the settings with the volume control. In most cases this adjustment should only be made one time, as TV Link 2 will store the latest set volume level.

Use the Beltone Direct Remote Control 2 (optional) to adjust both the streaming volume level and the hearing instrument microphone volume level in the hearing instrument*. Ask your hearing care professional for more information about this accessory.

The volume can, in some cases, be further adjusted at the signal source, for example by turning the TV volume down. This will adjust the volume of the streamed sound transmitted wirelessly to

**Adjustment of both hearing instrument and streaming volume is only available with Beltone Direct Remote Control 2.*

the hearing instruments. Adjusting the TV volume will affect the listening volume in the room as well.

Mono/stereo control

The two-position switch (3 on page 8) may be used to set Stereo (two channels) or Mono (one channel) audio streaming. For binaural fittings, the switch should preferably be set to the Stereo position. For monaural fitting it should be set to the Mono position.

Adjustable delay mode

In rare cases there may be a misalignment between the audio streamed to the hearing instruments and the sound coming from the TV speakers (echo) or even a misalignment between the streamed audio and the TV picture (lip-sync). This may be evident in more complex audio setups where the TV Link 2 is not connected directly to the TV (e.g. through a set-top box or other auxiliary unit).

To overcome such misalignments the streaming delay from the TV Link 2 can be adjusted as follows:

1. Make sure that the TV Link 2 is turned on and that your hearing instruments are receiving the streamed audio
2. Press and hold the pairing button (2 on page 8) for 3 seconds. Now the TV Link 2 will enter into the adjustable delay mode, where the green light indicator on the front of the TV Link 2 will blink once every 2 seconds. The yellow light indicator will be on whenever an audio signal is present
3. Use the "+" and "-" key (7 and 8 on page 9) on the top of the TV Link 2 to increase or decrease the delay of the streamed signal in 10 ms steps. The streamed signal can be delayed in the range of 0-250 ms
4. When the optimal alignment between the audio streamed to the hearing instruments and the sound coming from the TV

speakers or alignment between the streamed audio and the TV picture has been reached, press and hold the pairing button for 3 seconds. Now the TV Link 2 will resume normal operation, indicated by the green light indicator being constantly on

The offset set in adjustable delay mode will be stored in the TV Link 2.

If you do not exit the adjustable delay mode by pressing and holding the pairing button down for 3 seconds, the TV Link 2 will automatically resume normal operation after 30 minutes.

To reset the delay to 0 ms (factory setting), press and hold the pairing button while simultaneously powering on the TV Link 2.

Important Information



Maintenance and Care

Clean the TV Link 2 using a damp cloth. Never use household cleaning products (laundry detergent, soap, etc.) or alcohol to clean the device.

When the TV Link 2 is not being used for longer periods of time, unplug the power supply from the wall socket.

General warnings



- Keep the TV Link 2 out of reach of children under 3 years.
- The TV Link 2 uses low-powered digitally coded transmissions in order to communicate with other wireless devices. Although unlikely, nearby electronic devices may be affected. In that case, move the TV Link 2 away from the affected electronic device.
- Use the TV Link 2 only with the power supply unit that has been supplied together with the product. The use of any other types may damage or destroy the product and could be dangerous. Use of other power supplies may invalidate any approval or warranty.
- When you disconnect the power cord, grasp and pull the plug, not the cord
- Never use a power supply that is damaged
- Do not attempt to disassemble the power supply as it may expose you to dangerous electric shock
- Do not use the power supply outdoors or in damp areas
- When using the TV Link 2 and the device is affected by electromagnetic interference, move away from the source.

General precautions



- Your hearing instrument and the TV Link 2 were given a unique communication network code during the fitting. This ensures that TV Link 2 will not affect hearing instruments worn by others.
- High-powered electronic equipment, larger electronic installations and metallic structures may significantly reduce the operating range.
- Use only original Beltone accessories.
- Do not make any changes or modifications to the TV Link 2.
- Opening the TV Link 2 might damage it. If problems occur which cannot be resolved by following the remedy guidelines in the troubleshooting section of this user guide, consult your hearing care professional.
- The TV Link 2 may only be repaired by an authorized service center.
- Do not use the TV Link 2 in areas where RF transmission is prohibited, e.g. airplanes etc.
- Only connect the TV Link 2 to connections for which it is explicitly intended.

Technical specifications

Operating range:	Up to 7 meters
Power supply:	External wall adapter
Wireless:	2.4 GHz
Operating temperature:	0 to 55 °C
Storage temperature:	-20 to 60 °C

Temperature test, transport and storage information

The product is subject to various tests in temperature and damp heating cycling between -25 °C and +70 °C according to internal and industry standards.

Warranty

The TV Link 2 is covered by a limited warranty issued by the manufacturer for a period of 12 months from the day of the original purchase. Please notice that extended warranties may apply in your country. Please contact your local hearing care professional for more information.

What is covered by this warranty?

Any electrical component, that because of workmanship, manu-

facturing or design defects fails to function properly under normal use during life of this warranty will be replaced or repaired at no charge for parts or labour when returned to the point of purchase.

If it is determined that repair is not feasible, the entire unit may be replaced with an equivalent unit upon mutual agreement of the hearing care professional and the customer.

What is not covered by this warranty?

Problems arising from improper handling or care, excessive use, accidents, repairs made by an unauthorized party, exposure to corrosive conditions or damage due to foreign objects entering the device are NOT covered by the limited warranty and may void it. The above warranty does not affect any legal rights that you might have under applicable national legislation governing sale of consumer products. Your hearing care professional may have issued a warranty that goes beyond the clauses of this limited warranty. Please consult your hearing care professional for further information.

Serial number: _____

Date of purchase: _____

TROUBLESHOOTING GUIDE

SYMPTOM	CAUSE	POSSIBLE REMEDY
<i>The streaming button on the Remote Control is pressed but with no effect at all</i>	The TV Link 2 and hearing instruments have not been paired	Carry out pairing process
	The Remote Control and hearing instruments are not within wireless range	Ensure that Remote Control and hearing instruments are within wireless range and activate streaming again
<i>The push button on the hearing instrument has been pressed for more than 3 seconds but with no effect at all</i>	The TV Link 2 and hearing instrument have not been paired	Carry out pairing process
<i>The pairing button on the TV Link 2 is pressed but no pairing melody is played in the hearing instrument</i>	The TV Link 2 and hearing instrument are not within wireless range	Ensure that the TV Link 2 and hearing instruments are within wireless range, and repeat pairing process
	The TV Link 2 and hearing instrument have not been simultaneously in pairing mode	Repeat pairing process and ensure that the battery doors on both hearing instruments are closed within 20 seconds after the pairing button has been pressed on the TV Link 2

SYMPTOM	CAUSE	POSSIBLE REMEDY
<i>The streaming button on the Remote Control is pressed but no streamed audio signal is found when searched for (indicated by an 'X' icon on the display)</i>	The TV Link 2 and hearing instruments are not within wireless range	Ensure that TV Link 2 and hearing instruments are within wireless range and activate streaming again
	The TV Link 2 is not cabled correctly to the TV	Connect the cable between the TV Link 2 and the TV correctly and activate streaming again
	The TV Link 2 is powered off or the sound from the TV output has been muted	Power on the TV Link 2 or unmute the TV and activate streaming again
<i>There is no sound in the hearing instruments although it is in the streaming program</i>	The TV Link 2 and hearing instruments are not within wireless range	Ensure that the TV Link 2 and hearing instruments are within wireless range
	The TV might have been powered off or the sound from the TV has been muted	Power on or unmute the TV
<i>The sound from the TV Link 2 is distorted</i>	The audio input level from the TV is too high	Adjust the volume using the volume button on the TV Link 2 until the sound is no longer distorted

SYMPTOM	CAUSE	POSSIBLE REMEDY
<i>The volume level from the TV Link 2 is very low</i>	The audio input level from the TV is too low	Adjust the volume using the "+" and "-" keys on the TV Link 2 until the sound is sufficiently loud
<i>The sound from the TV Link 2 is distorted or drop-outs occur from time to time</i>	The TV Link 2 and hearing instruments are on the edge of the wireless range	Move a little closer to the TV Link 2
	The TV Link 2 and hearing instruments are not within sufficient "line-of-sight"	Ensure that the TV Link 2 is placed in an adequate position, and that you are within normal reach without any significant obstacles obstructing the streaming
<i>The sound from the TV Link 2 is not synchronized with the TV picture</i>	Your TV is not able to synchronize the sound from the selected audio outputs and the picture	<p>If possible, try using another audio output from your TV. Alternatively, follow the instructions in the "Adjustable delay mode" section of this user guide. If this does not help, contact your TV dealer</p> <p>The TV Link 2 audio streaming has almost no latency and does not contribute itself to any lip sync error</p>

SYMPTOM	CAUSE	POSSIBLE REMEDY
<i>The sound from the TV Link 2 is not synchronized with the sound from the TV loudspeakers</i>	Your TV is not able to synchronize the sound from the selected audio outputs with the sound from the TV loudspeakers	<p>If possible, try using another audio output from your TV. Alternatively, follow the instructions in the “Adjustable delay mode” section of this user guide. If this does not help, contact your TV dealer</p> <p>The TV Link 2 audio streaming has almost no latency and does not contribute itself to any echo effects</p>
<i>The sound from the hearing instruments is either too low or too high</i>	The audio input level is not suitable for listening	<p>Adjust the volume using the “+” and “-” keys on the TV Link 2 until the sound is suitable.</p> <p>Alternatively, use the “+” and “-” keys on the Remote Control (optional) for this operation</p>
<i>A hearing instrument unintentionally drops out of the streaming program</i>	<p>The TV Link 2 and hearing instruments have been out of wireless range for more than 5 minutes</p> <p>The battery in the hearing instrument is so depleted that it no longer supports audio streaming</p>	<p>Ensure that TV Link 2 and hearing instruments are within wireless range and activate streaming again</p> <p>Replace the battery in the hearing instrument with a new one</p>

Be aware of information marked with the warning symbol



WARNING points out a situation that could lead to serious injuries,

CAUTION indicates a situation that could lead to minor and moderate injuries



Advice and tips on how to handle your Beltone Direct accessory better.



Equipment includes RF transmitter

Nominal RF output power transmitted is 16.3 dBm



Product is a Type B applied part



Manufactured under license from Dolby Laboratories.



Please ask your local hearing care professional concerning disposal of your Beltone Direct accessory



Any issues relating to the EU Medical Device Directive 93/42/EEC or EU Radio Equipment Directive 2014/53/EU should be directed to GN Hearing A/S.

Manufacturer according to EU Medical Device Directive 93/42/EEC:

Worldwide Headquarters

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

CVR no. 55082715