

BHMFit

contact star evo1

Fitting Software

Instructions for use

For fitting of the Hearing System



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1 INTRODUCTION

This document was created to help the hearing aid acoustician and authorised specialist to install the Fitting Software **BHMFit contact star evo1**, and consequently to provide information for fitting of the hearing system.



Reference is made to the fact that modifications to hearing systems may only be carried out by hearing aid acousticians or authorised specialists. Improper adaptation by those without authorisation can cause hearing damage.

Adaptations must be carried out with extreme caution so follow the user instruction for the device and note the output level of the device.

2 SYSTEM REQUIREMENTS

BHMFit contact star evo1 is using a database that allows the efficient management of client information:

- Client contact information
- Session list
- Audiogram data

The database can be installed as client (standalone) or server database.

The following system requirements are a requirement to use the **BHMFit contact star evo1** Fitting Software:

- Windows XP - 32 Bit & 64 Bit, Windows Vista - 32 & 64 Bit, Windows 7 - 32 & 64 Bit, Windows 8 - 32 & 64 Bit, Windows 8.1 - 32 & 64 Bit, Windows 10 - 32 & 64 Bit
Operating system must be up to date (Latest Service Pack and Updates)
- Microsoft .NET Framework 4
- DVD drive or USB port
- 150 MB (Fitting Software) / 1 GB (incl. Server and Database) free hard disk space
- Minimum of 1024 MB RAM
- Minimum screen resolution of 1024 x 768 pixels
- Programming interface: NOAHlink, HI-PRO, HI-PRO USB or HI-PRO2
- Programming cable
- PDF Reader
- Microsoft Word (Export of the fitting protocol)

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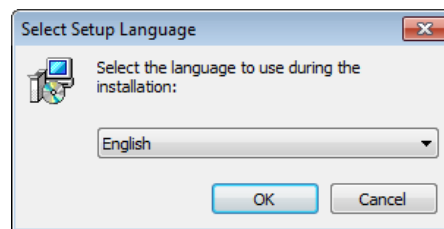
3 INSTALLATION

Note: Administrator privileges are required to avoid installation problems.

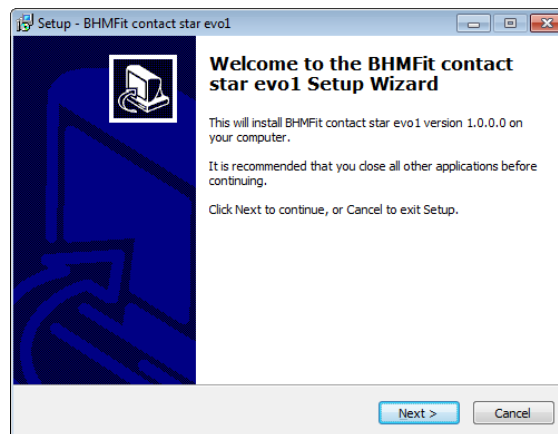
Close all running Windows applications before starting the installation. Other running programs or virus scanner could affect or block the installation.

Open the BHM Installer if it does not start automatically. If the Installer fails to open or crashes, the installation medium is probably damaged. Contact your reseller or BHM if you have any questions about this. Carry out the following after opening the Installer:

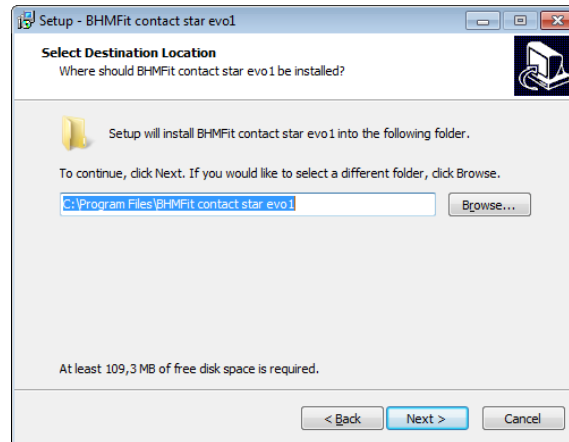
3.1 STANDALONE INSTALLATION



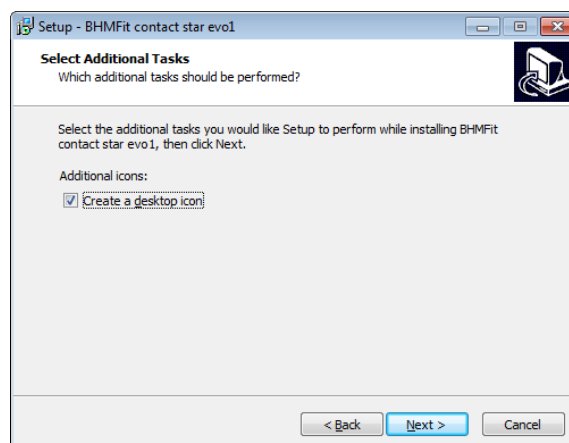
Select the desired language for the installation from the drop-down menu and click **"OK"**.



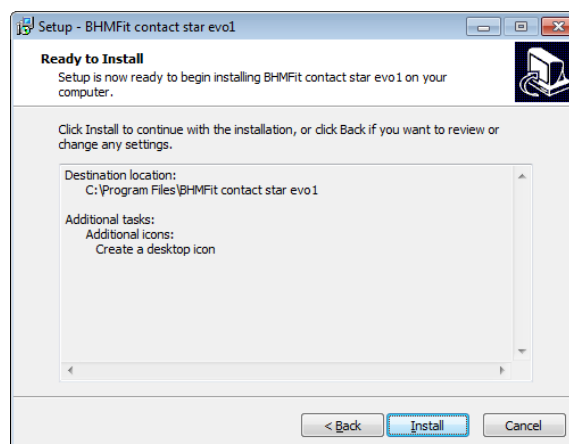
Click **"Next >"** to start the installation.



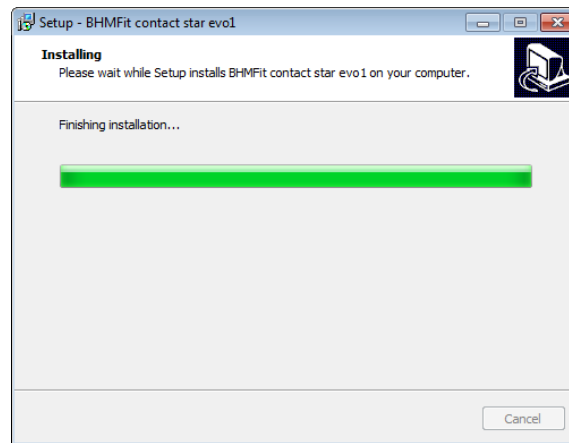
You can also select the default destination folder if required. Click **"Next >"** to continue with the installation or click **"Browse..."** to change the destination folder. If no changes are made, the Fitting software is installed in **"C:\Program Files\BHMFitContactStarEvo1"**. Then click **"Next >"** again.



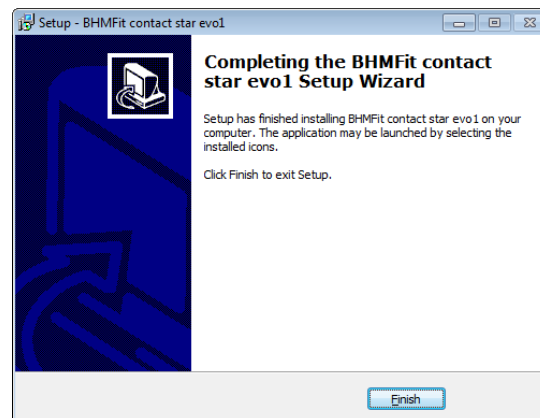
Select here whether a desktop icon is created during the installation. Click **"Next >"** once you agree with the settings.



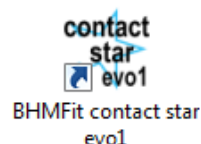
The next window allows you to check your selection once again. If you not agree with a selection, you can go back to the previous window with "< **Back**" and change the settings. Please click "**Install >**" once to start the installation process.



The Installer now copies all the necessary files and sets up your system to use BHMFit contact star evo1.



The installation has been completed successfully. Click "**Finish**" to finalise the installation. If you made the relevant choice during the installation, the



icon for running the BHMFit contact star evo1 Fitting Software has been automatically added to your desktop.

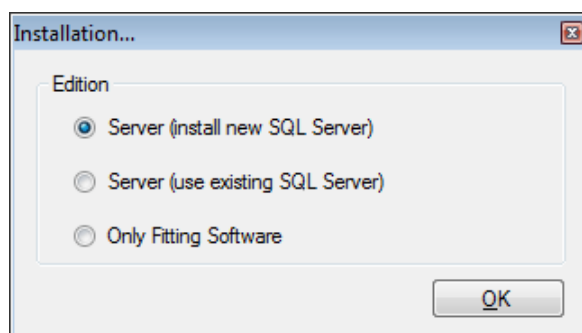
3.2 SERVER INSTALLATION (SQL)



The Server Installation must be done by a System administrator. An Installation Guide including all information is available. See „**BHMFit Contact Server Installation Guide**“.



Select the desired hearing aid for the installation by clicking the button.



- **Server (install new SQL Server)**
 Server Installation – Installation of SQL EXPRESS server (incl. database) and Fittingsoftware (Setup must be done on Server). For checking the connection the Fittingsoftware can be started (See BHMFit Contact Server Installation Guide)
- **Server (use existing SQL Server)**
 The database is installed on an existing SQL server. For checking the connection the Fittingsoftware can be started (See BHMFit Contact Server Installation Guide)
- **Only Fitting Software**
 Only the fitting software is installed (for Client installation and updates)



Please note: The installation must be done by a system administrator!

4 CONNECTING THE HEARING SYSTEM WITH THE PROGRAMMING INTERFACE

NOAHlink, HI-PRO, HI-PRO USB and HI-PRO2 is supported as a programming interface. The programming interface must be installed on your computer. For the installation, please use the documents and software from the manufacturer of the programming interface.

The programming socket on the **contact star evo1** is located on the lower side and is protected by a housing cover that must be opened before the programming cable is connected.



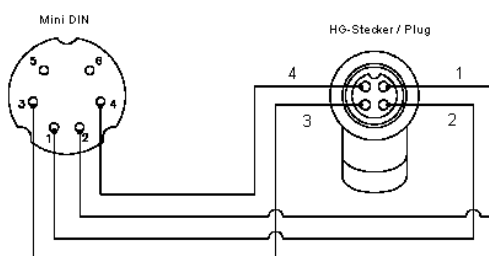
The housing cover provides protection from dust and moisture and must be closed after fitting of the hearing system. Please refer to the device user instruction for details.

Gently connect the programming cable to the programming interface with the Mini-DIN connector and to the hearing system with the 4-pin hearing aid connector. Ensure here that the two dots on the connector and the socket on the hearing system are aligned on top of each other.

Please remove the battery during the programming process.

Programming cable:

Use a cable with the standard wiring as per HIMSA specification, or a compatible cable.




The hearing system must always be turned off when connecting and unplugging the programming cable.

Examples of compatible programming cables:

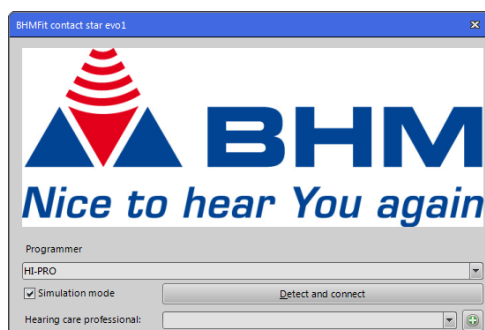
- Beltone 902290769029
- Siemens: Connex 3
- Oticon: No. 3
- BHM: 77733408 (VBK No. 99/150-RED right)
- BHM: 77733409 (VBK No. 99/150-BLUE left)

5 THE PROGRAM IN SIMULATION MODE


Starting BHMFit contact star evo1

BHMFit contact star evo1 is started by double-clicking the  icon. BHMFit contact star evo1 can be opened from the Start menu with **"Start -> All Programs -> BHMFit contact star evo1 -> BHMFit contact star evo1"** if your choice during installation was that no desktop icon is created. Please contact your system administrator if you cannot start BHMFit contact star evo1.

The connection window opens:






Tick the **"Simulation mode"** box.

Select the name of the **"Hearing care professional"** with the drop down menu or create a new profile by clicking the  button. *(Only required if a server installation was executed.)*

Then click **"Detect and connect"**.

Connecting a hearing system with the programming interface is not necessary when starting the Fitting software in simulation mode.

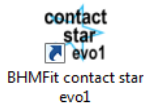
Individual functions of the fitting software can now be tried in simulation mode. The following sections provide further details on the software functions. Simulation mode helps you to become familiar with the fitting software.

The    (Store – Send - Read) icons have no function in simulation mode as no hearing system is connected. The icons are not available (grey).

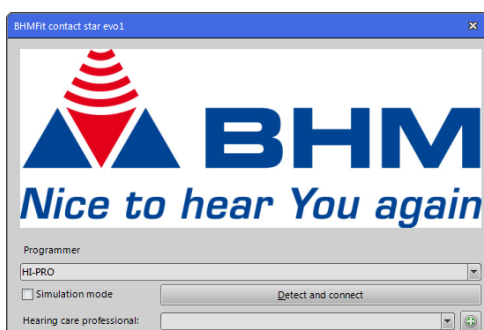


6 STARTING THE PROGRAM

Starting BHMFit contact star evo1


BHMFit contact star evo1 is started by double-clicking the  icon. BHMFit contact star evo1 can be opened from the Start menu with **"Start -> All Programs -> BHMFit contact star evo1 -> BHMFit contact star evo1"** if your choice during installation was that no desktop icon is created. Please contact your system administrator if you cannot start BHMFit contact star evo1.

The connection window opens:



The hearing system must be connected with the programming interface before it can be programmed.

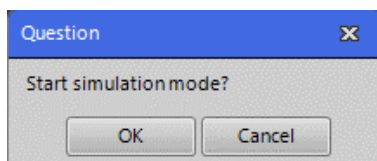
Select the right programming interface from the drop down menu. **HI-PRO** and **NOAHlink** are available.

Select the name of the **"Hearing care professional"** with the drop down menu or create a new profile by clicking the  button. *(Only required if a server installation was executed.)*

An automatic search for connected devices can be started by clicking **"Detect and connect"**.

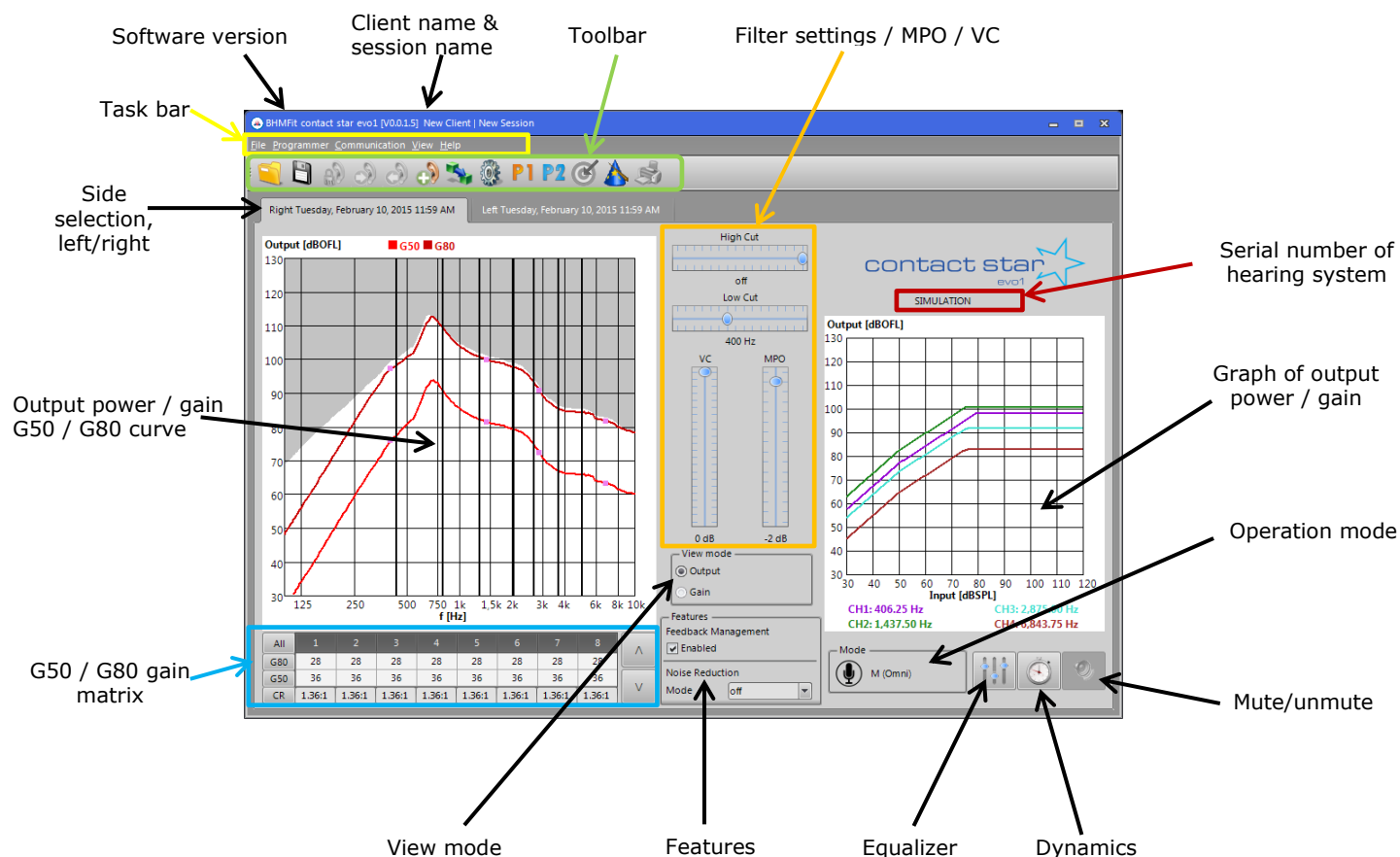
Ensure that the box in front of "Simulation mode" is not ticked (otherwise, you will only be in simulation mode and will not be able to program a device).

The question **"Start simulation mode?"** (Section 5) appears, if BHMFit contact star evo1 does not find any hearing systems using **"Detect and connect"**.



7 PROGRAMMING THE HEARING SYSTEM

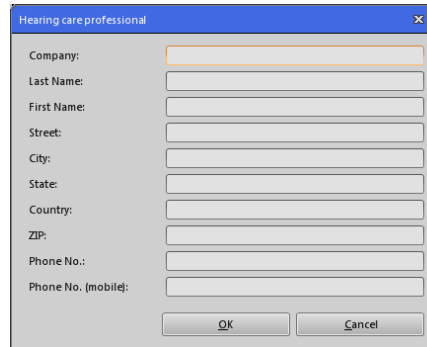
7.1 DESCRIPTION OF THE MAIN WINDOW



7.2 MENU BAR

7.2.1 FILE

- *Open session* (Section 7.3.1)
- *Save session* (Section 7.3.2)
- *Hearing care professional data*
Here the acoustician details can be saved.


 A screenshot of a software window titled "Hearing care professional". It contains several text input fields for personal and contact information: Company, Last Name, First Name, Street, City, State, Country, ZIP, Phone No., and Phone No. (mobile). At the bottom right of the window are "OK" and "Cancel" buttons.

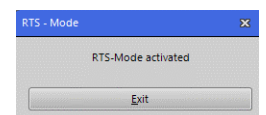
- *Import Data*
 - *Import BHM Data* (only available if a BHMFit2 Database exists)
 - *Import NOAH Data* (only .xml Files supported. For each client a .xml file is necessary)
- *Exit*
Quits the BHMFit contact star evo1 fitting software

7.2.2 PROGRAMMER

- *Send changes immediately*
Enabling this menu option always transfers settings modifier immediately to the hearing system. See Section 7.3.4.

7.2.3 COMMUNICATION

- *Read* (Section 7.3.5)
- *Send* (Section 7.3.4)
- *Store* (Section 7.3.3)
- *Copy* (Section 7.3.6)
- *Transmit settings* (Settings 7.3.7)
- *Reset to factory settings*
The hearing system is restored to the factory settings.
- *Set to RTS mode*
The hearing system is set to RTS mode (reference test settings). If the RTS Mode is activated, a Window is shown. To deactivate the RTS Mode, click the **"Exit"** Button in this window.
- *FirstFit* (Section 0)
- *Read VC Level*
The actual position of the Volume Control will be shown.



7.2.4 VIEW

- *Languages*
The language required for the Fitting software can be selected here.
NOTE: The BHMFit contact star evo1 Fitting software must be restarted after the language is changed.
- *View OFL90 curve*
Enabling/disabling of the OFL90 curve in the output graph.
- *Settings* (Section 7.3.8)

7.2.5 HELP

- *About ...*
Information about the application and contact to BHM.
- *Instructions for use*
Opens the user instruction for the BHMFit contact star evo1 fitting software.


7.3 TOOLBAR




Icon description from left to right:

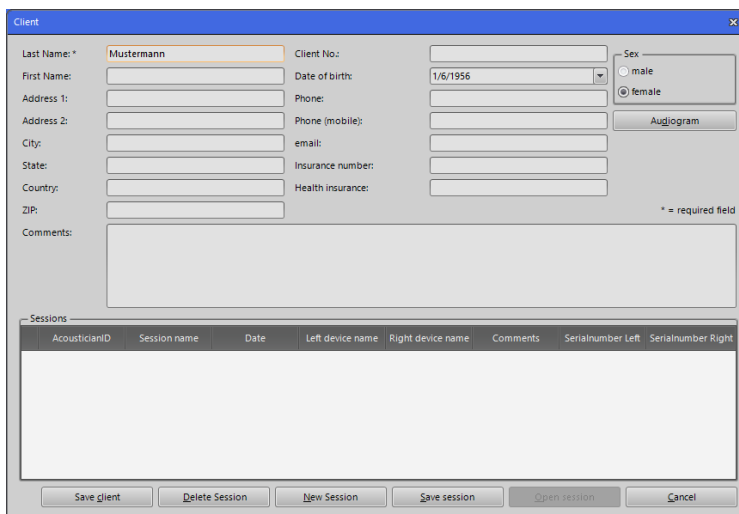
1. Open session
2. Save session
3. Store the settings into the hearing system
4. Send the settings to the hearing system
5. Read the settings of the hearing system
6. Copy the settings to another device
7. Transmit settings to another program
8. General settings
9. Program selection (P1 and P2)
10. FirstFit (fitting suggestion)
11. Fitting assistant
12. Print/export the session

7.3.1 OPEN SESSION

 This is where you can load sessions previously saved. Select the relevant client and click **"Open client"**. A window opens displaying the sessions saved for the client selected. Client details can also be added and changed here. Then select the required session and click **"Open session"**. Then you return to the Fitting screen and the settings saved for the session loaded are used automatically.

7.3.2 SAVE SESSION

 If you find the perfect settings in a fitting session, you can save and reload them as required using this function (see "Open session"). Clicking the **"Save session"** icon takes you directly to your client database. Here you can either select an existing client (for whom the session is to be saved) or create a new client.

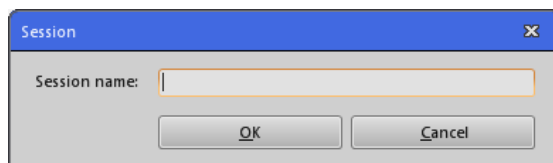


The screenshot shows a 'Client' window with the following fields and controls:

- Last Name:** Mustermann
- First Name:** (empty)
- Address 1:** (empty)
- Address 2:** (empty)
- City:** (empty)
- State:** (empty)
- Country:** (empty)
- ZIP:** (empty)
- Comments:** (empty text area)
- Client No.:** (empty)
- Date of birth:** 1/6/1956
- Sex:** ☐ male, ☒ female
- Phone:** (empty)
- Phone (mobile):** (empty)
- email:** (empty)
- Insurance number:** (empty)
- Health insurance:** (empty)
- Buttons:** Save client, Delete Session, New Session, Save session, Open session, Cancel
- Sessions Table:**

AcousticianID	Session name	Date	Left device name	Right device name	Comments	Serialnumber Left	Serialnumber Right
(Empty table body)							

Here you can fill in the client's details. The last name is a minimum requirement. Client's details and your settings are saved by clicking **"Save session"**. You can now enter another name for the current session:


 A screenshot of a software dialog box titled "Session". It contains a text input field labeled "Session name:" with a cursor inside. Below the input field are two buttons: "OK" and "Cancel".

7.3.3 STORE THE SETTINGS INTO THE HEARING SYSTEM



The settings must be saved in the hearing system after fitting is complete. Click **"Store"** to do this.

Otherwise, all the settings transferred to the hearing system are not saved, and are lost on disconnecting (programming cable) or turning off the hearing system. The device then retains the last stored programming. Always turn off the hearing system before unplugging the programming cable.

NOTE: Only the currently selected program will be stored into the hearing system. Each program must be stored separately!

7.3.4 WRITING THE SETTINGS TO THE HEARING SYSTEM



Clicking the **"Send"** icon sends the current settings of the Fitting software to the hearing system - the client can evaluate them. This process must be carried out after every modification of the settings to test their effectiveness. Once an optimal setting for the client has been found, it must then be burned in the hearing system. Refer to Section 7.3.3, "Store the settings into the hearing system".

If direct transfer is enabled in the task bar with **"Programmer -> Send changes immediately"**, the settings are always transferred immediately to the hearing system after every change.

NOTE: Storing of the data is still necessary.

7.3.5 READING THE SETTINGS OF THE HEARING SYSTEM



Click the **"Read"** icon to read and then display the data saved in the hearing system.

If a hearing system is selected at the beginning of a session, the current setting of the device is automatically read when changing to the fitting screen.

NOTE: The data currently STORED are read. Settings are therefore lost if they have not been stored after modification.

7.3.6 COPYING SETTINGS



Clicking the **"Copy"** icon copies the current settings from the active to the passive hearing system provided two identical hearing systems are connected with the programming interface. For a binaural fitting therefore, you can pre-configure the second device accordingly after fitting the first.

NOTE: Only the settings currently shown on the screen are copied. The settings are only copied to the device, not stored.

7.3.7 TRANSMIT SETTINGS TO ANOTHER PROGRAM



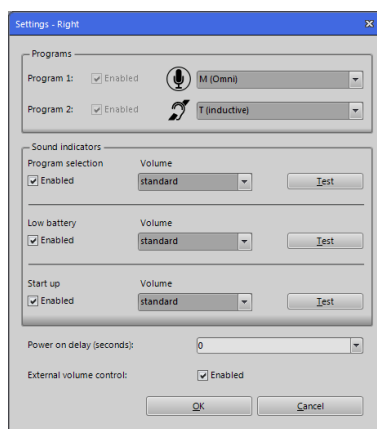
The current settings in the program currently selected can be transferred to another program by clicking the **"Transmit settings"** icon.

7.3.8 GENERAL SETTINGS



Clicking the **"Settings"** icon opens a small menu enabling the following advanced settings to be configured:

- Selection of the mode for each program. See Section 7.4.3, "Modes", for further information on the modes.
- Enabling/disabling of the acoustic signals for program selection, low battery warning and start up. It is also possible to change the volume for the acoustic signals. The volume will be stored in the device if you click the **"Test"** or **"OK"** Button.
- Adjustment of the power on delay (in seconds) for the hearing system.
- Enabling/disabling of the External volume control.



7.3.9 PROGRAM SELECTION



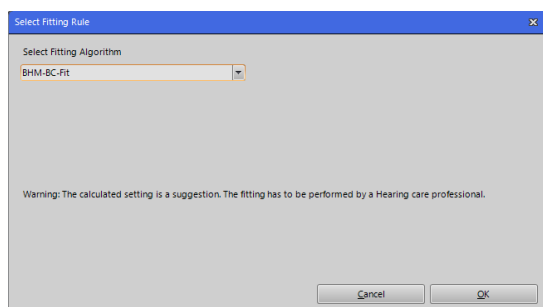
These buttons enable you to choose the respective programs via the fitting software. Programs available are shown in blue. The program currently selected always has a different colour (orange). Programs not available are shown grey.

7.3.10 FIRSTFIT (FITTING SUGGESTION)



The **"FirstFit"** button enables you to access the automatic fitting suggestion. This function only becomes active once an audiogram has been entered. Please refer to the 7.4.1 "Audiogram" section for more information on the audiogram.

The fitting method **BHM-BC-Fit** is available.



The fitting targets of the algorithms are shown as dashed lines in the display of the output graph in the main window.



CAUTION: The fitting suggestion is a recommendation based upon the entered audiogram. You must make the decision on whether this recommendation is applicable in a manner consistent with the level of hearing loss and the client.

7.3.11 FITTING ASSISTANT



The fitting assistant helps you to fine-tune the hearing system to client requirements, or to the needs of your clients. Here you will find examples from everyday situations, such as "Traffic noise too loud", and with suggestions for personal optimisation.



You must make the decision on whether this recommendation is applicable in a manner consistent with the level of hearing loss and the client.

7.3.12 PRINTING/EXPORTING THE SESSION



The **"Print/Export"** button enables you to print or save the fitting session to a document file. **MS Word** and **PDF** formats are available. The storage location is freely selectable. This function is only available in conjunction with saved sessions.

You can also add or change the client and acoustician details.

NOTE: The data changes made in this form only affect the export carried out. The data in the Fitting software remains unchanged.

Export

Client

Last Name: Mustermann

First Name:

Address 1:

Address 2:

City:

State:

Country:

ZIP:

Date of birth:

Phone mobile:

Phone:

Health insurance:

Sex:

☐ male

☒ female

Hearing care professional

Company: Acoustician

Last Name:

First Name:

Street:

City:

State:

Country:

ZIP:

Phone:

Phone mobile:

File path

C:\Programme\BHMFitpan\ReportExport\

Export

☒ PDF

☐ MS Word

☐ Print

Session

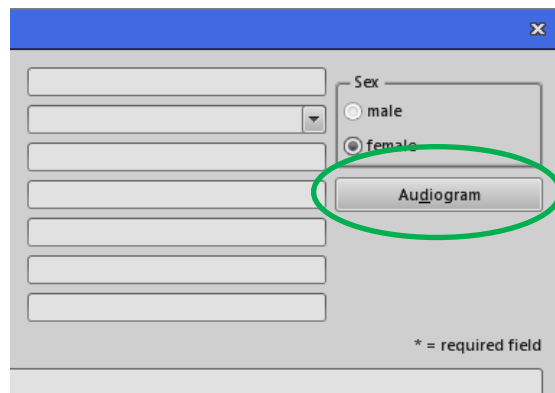
Comments:

OK Cancel

7.4 FITTING SETTINGS

7.4.1 AUDIOGRAM

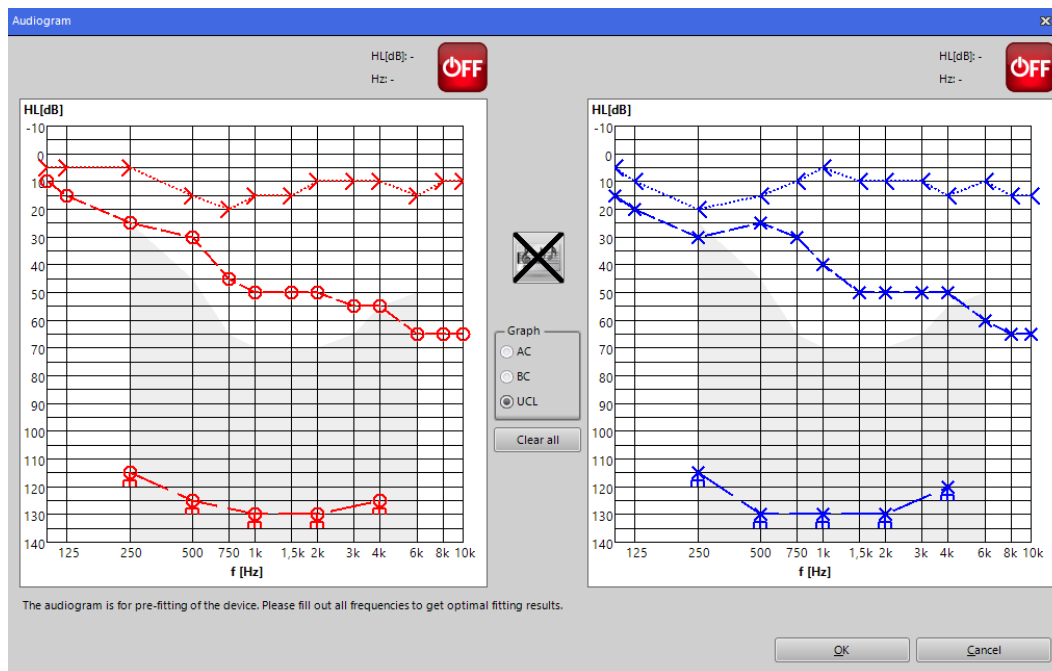
It is possible to enter the client's audiogram via the client database. The audiogram can be selected via a button (see diagram) after an existing client is opened or a new one is created.



7.4.1.1 ENTERING AUDIOGRAM DATA

The following data can be entered:

- Hearing threshold of air conduction (AC)
- Hearing threshold of bone conduction (BC)
- Uncomfortable Level (UCL)



Selecting AC, BC or UCL in the **"Graph"** box enables data to be entered into the audiogram. Set data points with left-click or return key at the desired frequency (f [Hz]) and hearing loss

(HL [dB]) position. The data for the right ear (RED) is entered in the graph on the left and the data for the left ear (BLUE) in the graph on the right.

Delete data points again by right-click or backspace key.
The entire audiogram can be deleted by clicking "**Clear all**".

Click the "**OK**" button to save the audiogram.

NOTE: A hearing loss must not be entered for every frequency.

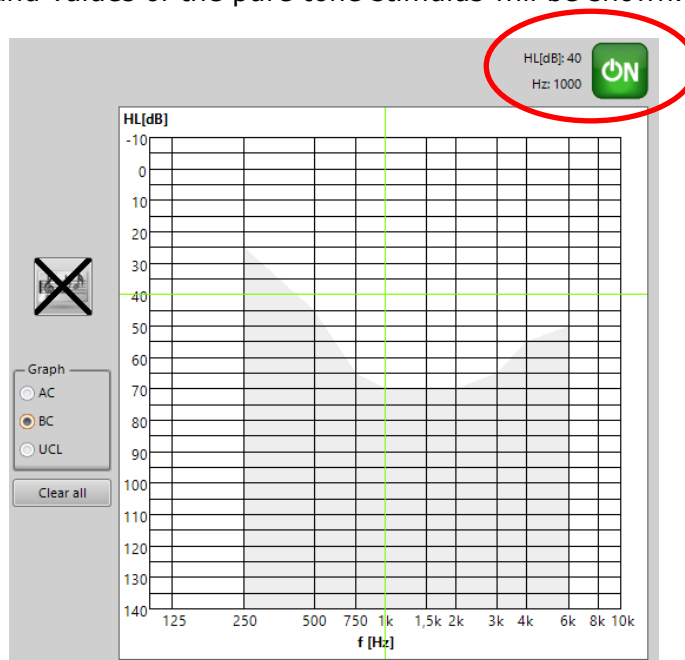
7.4.1.2 BC AUDIOMETER FUNCTION (IN-SITU)

A pure tone stimulus can be used during the hearing aid fitting. With this function the hearing aid fitting will be more precisely.

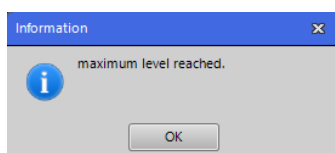


After entering the audiogram the output of the hearing system will be muted.

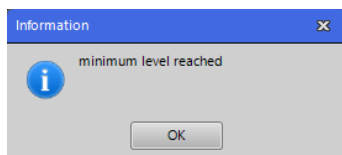
Position the mouse cursor to the desired frequency (f [Hz]) and hearing loss (HL [dB]). The current selection will be marked with a green cross. Turn on/off the pure tone stimulus by pressing the space bar. The **red OFF button** at the top right of the audiogram will turn into a **green ON button** and values of the pure tone stimulus will be shown.



The grey area in the audiogram mark the maximum output level (HL [dB]). If the maximum level is reached, a message will be shown.

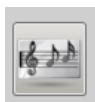


As well if the minimum level is reached.



To allow any communication with the client, it is possible to unmute the output of the hearing system(s) by clicking the button.

i NOTE: The Bone Conduction Audiometer function is only executable for the detection of the bone conduction hearing threshold level.

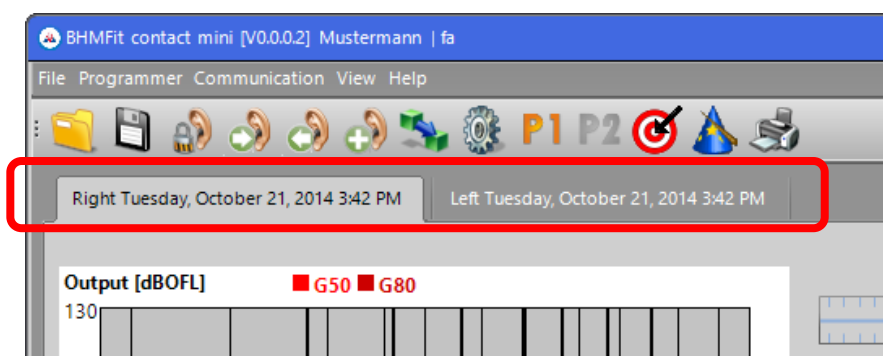


For setting the measured data points, see section 7.4.1.1.

7.4.2 SIDE SELECTION (RIGHT AND LEFT HEARING SYSTEM)

If two hearing systems are connected with the programming interface, the tabs under the toolbar enable switching between the right and left hearing system. The selected side is light grey the other side dark grey.





NOTE: The G50 and G80 curves are marked in "red" if the right side is selected. These curves are marked in "blue" if the left side is selected.



7.4.3 MODES



The following predefined modes can be selected for the individual programs under **"Settings"** (Section 7.3.8). The mode selected is displayed in the main window.

Icon	Mode	Available for	
		P1	P2
	automatic	Yes	Yes
	M (Omni)	Yes	Yes
	T (inductive)	NO	Yes
	MT (inductive)	NO	Yes

Programs: Up to two individual programs. It depends on the hearing system.

automatic: In Automatic mode, the signal received by the microphone is analysed and categorised into different hearing situations.

These are:

- Quiet environments
- Speech in quiet environments
- Speech in background noise
- Music and movie
- Background noises
- Wind noises

The parameters of the hearing system are always configured according to this categorisation such that an optimal level of hearing comfort and optimal speech comprehension are attained.

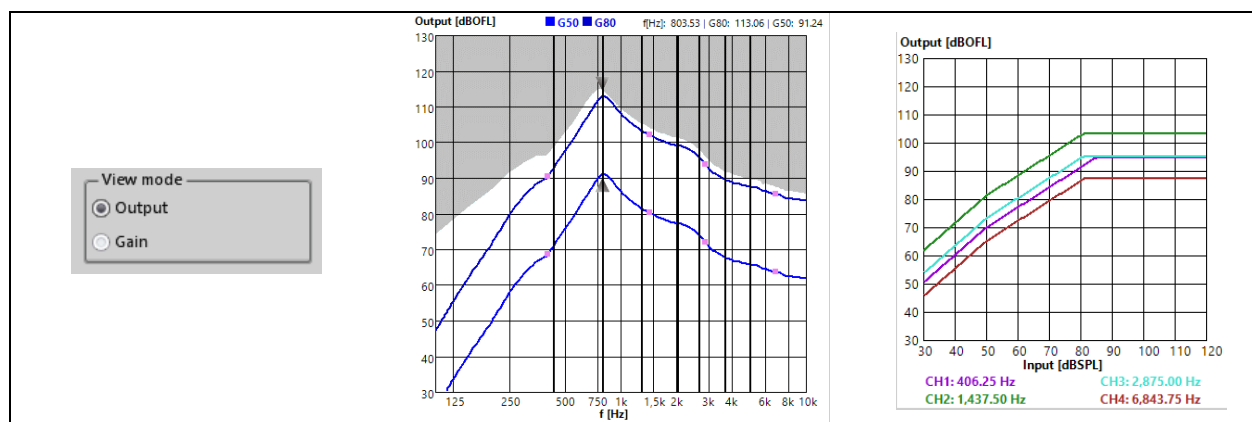
7.4.4 VIEW MODE

The curves are shown on two diagrams in the main window. It is possible to switch between the **"Output"** and **"Gain"** curves.

7.4.4.1 OUTPUT CURVES

The output force level [dBOFL] as a function of frequency [Hz] is displayed in the diagram on the left. The curves displayed represent the **G80** and **G50** curves. The maximum output force level curve (**OFL90**) is not displayed as a line but as an area extending up to the top border of the graph. This can be enabled and disabled from menu option **"View"** (Section 7.2). The seven black, bolder, vertical lines represent the **crossover frequencies** of the hearing

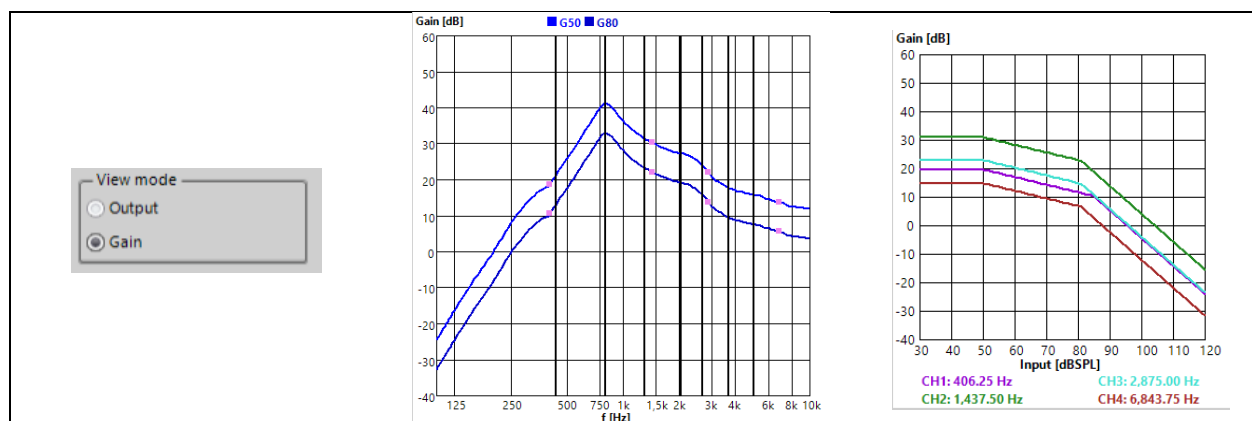
system. Gain and compression can be adjusted separately in the individual channels (frequency bands) of the hearing system - Section 7.4.6. The values for the G80 and G50 curves at the desired frequency can be displayed on the top border by clicking the graph. The output force level [dBOFL] as a function of the input level [dBSPL] at a certain frequency is displayed at the graph on the right. These frequencies are calculated separately depending on the **crossover frequencies** of the frequency bands. The curves displayed are distinguishable with different colours. The current frequencies are displayed at the bottom of the graph.



7.4.4.2 GAIN CURVES

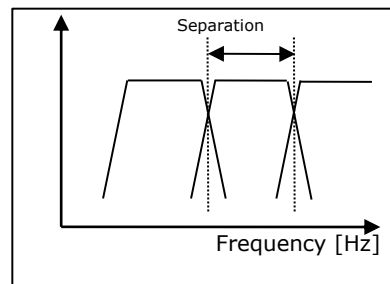
The gain [dB] as a function of frequency [Hz] is displayed at the graph on the left. The curves displayed represent the **G80** and **G50** curves. The seven black, bolder, vertical lines represent the **crossover frequencies** of the hearing system. Gain and compression can be adjusted separately in the individual channels (frequency bands) of the hearing system - section 7.4.6. The values for the G80 and G50 curves at the desired frequency can be displayed on the top border by clicking the graph.

The gain [dB] as a function of the input level [dBSPL] at a certain frequency is displayed at the graph on the right. These frequencies are calculated separately depending on the **crossover frequencies** of the frequency bands. The curves displayed are distinguishable with different colours. The current frequencies are displayed at the bottom of the graph. This graph clarifies mainly the settings for MPO (Section 7.4.5) and compression (Section 7.4.6.2).



7.4.4.3 CROSSOVER FREQUENCIES

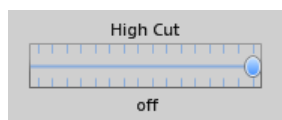
The signal is split into eight separate processing channels. The frequency at which two adjacent channels overlap is known as crossover frequency. These frequencies have a fixed definition and cannot be changed.



7.4.5 FILTER SETTINGS

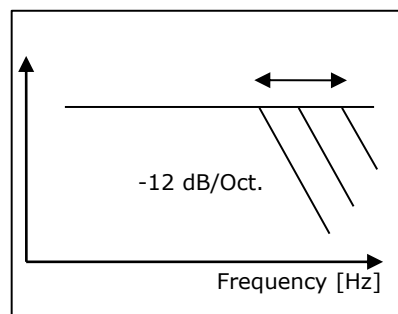
The following filter settings can be configured from the Fitting window. All the effects of the filter settings are displayed instantly in the curve graphs (Section 7.4.4).

7.4.5.1 HIGH CUT

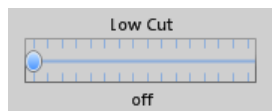


The High Cut filters high frequencies above a selectable frequency with a slope of -12 dB/octave. It is disabled when the slider is on the right.

Otherwise, it is possible to select a limiting frequency between 8000 Hz and 1000 Hz. This function has proven very effective in practice at suppressing unwanted, high frequency signal parts and disturbing noises.

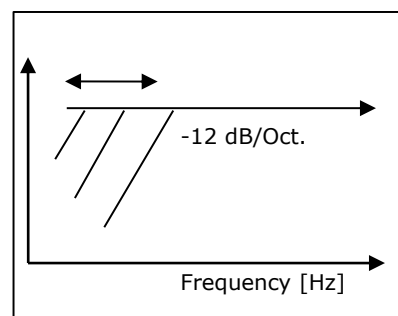


7.4.5.2 LOW CUT

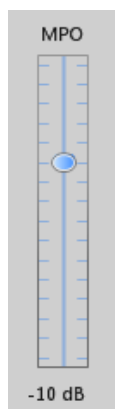


The Low Cut filters low frequencies below a selectable frequency with a slope of -12 dB/octave. It is disabled if the slider is on the left. Otherwise, it is

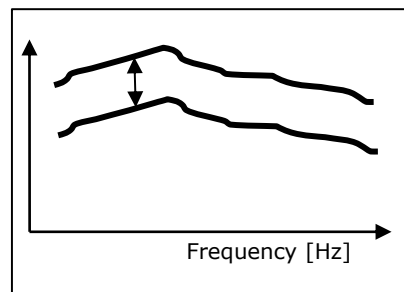
possible to select a limiting frequency between 125 Hz and 2000 Hz. This filter reduces the maximum output level at low frequencies. In most cases, this results in considerably clearer sound reproduction and improved speech intelligibility. The power consumption of the device is also reduced.



7.4.5.3 MPO (MAXIMUM POWER OUTPUT)



The MPO limits the output force level of the hearing system. Force levels exceeding the selected threshold are restricted. This programming option is similar to the familiar *Peak Clipping* function and limits the maximum output force level. The digital implementation means this function delivers a much-reduced number of distortions as compared to the "hard" peak clipping previously used. This function should be used in particular when the uncomfortable loudness level is easily exceeded. The maximum output signal can be reduced in 2 dB increments with MPO. Values between -30 dB and 0 dB can be selected. This function helps protect hearing and prevents excessively high output levels. This function becomes particularly evident in the

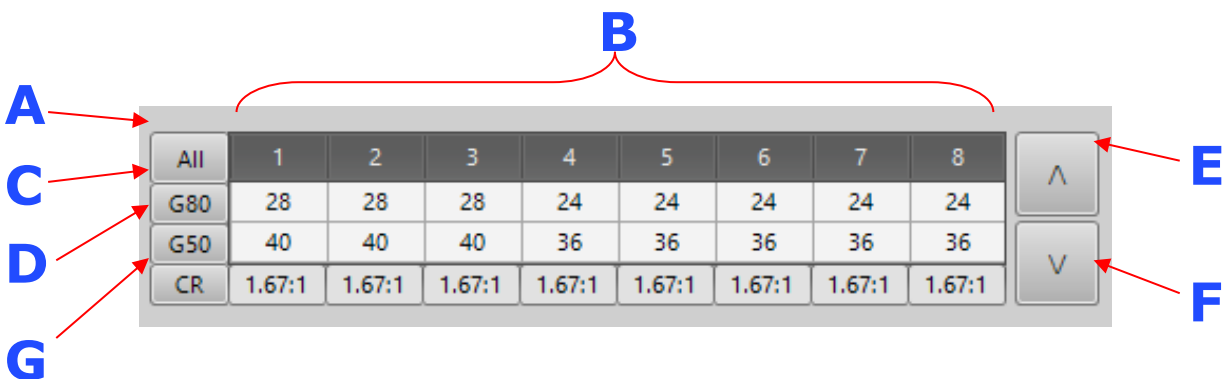


Input / Output view (Section 7.4.4).

7.4.6 G50 / G80 GAIN MATRIX

7.4.6.1 GAIN

The gain for this hearing system can be set for eight frequency bands via a gain matrix. The values of the cells selected can be increased and decreased by the **E** and **F** buttons. The gain values of the internal amplifier can be set with the values in the cells. The gain characteristics of the receiver connected and the additional filter are not included in the gain values displayed. Therefore, always take the actual gain values from the graph (Section 7.4.4).



Clicking **A**, **B**, **C** or **D** can select multiple cells.

Clicking these causes:

- A** All G50 and G80 cells are selected and the total gain in all channels can now be set with the **E** and **F** buttons.
- B** The total gain in the band selected can be changed (with compression ratio staying constant).
- C** The gain for 80 dB can be changed for all channels simultaneously. This changes the compression ratio accordingly in all channels.

- D** The gain for 50 dB can be changed for all channels simultaneously. This changes the compression ratio accordingly in all channels.
- E** The values of the cells selected are increased (PLUS).
- F** The values of the cells selected are decreased (MINUS).
- G** The box displays the current compression ratio.

It may be the case that values cannot be increased or decreased when setting the gain via the gain matrix. Possible reasons for this:

1. The minimum or maximum gain has been reached.
2. The value for G50 cannot be less than G80.
3. The value for G80 cannot be greater than G50.
4. The compression inside the channel cannot exceed $\infty:1$.

7.4.6.2 COMPRESSION

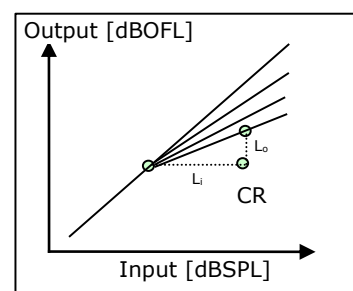
Compression ratio (CR)

The compression ratio is separately adjustable for each frequency band. It represents the ratio of input sound pressure level difference to output force level difference:

$$CR = \Delta L_i / \Delta L_o$$

Example: CR=2:1

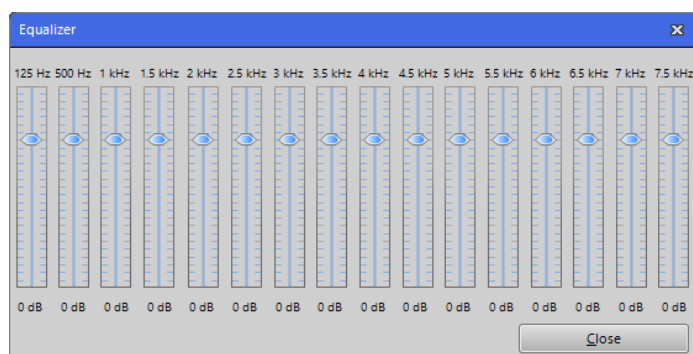
Increasing the input by 20 dB increases the output by 10 dB \Rightarrow 20 dB / 10 dB \Rightarrow 2:1. The higher the CR is selected to be, the stronger the compression and the smaller the dynamic range. CR = 1:1 in the linear range.



7.4.7 EQUALIZER



The hearing system has a 16-band equalizer that is divided up within a frequency range between 125 Hz and 7.5 kHz. At these frequencies, the gain is increased or decreased as standard by the value selected.



The acoustician/audiologist can adapt the hearing system accordingly to the audiogram by setting the individual frequency bands. Any potential resonance phenomena can be suppressed. This function can also linearize the frequency characteristics if required.

The default gain setting of each frequency band is 0 dB. It is possible to change the gain in the range -18 dB to +6 dB for every frequency band. The effects of a change to the equalizer are displayed in real-time on the output and gain curves (Section 7.4.4).

7.4.8 DYNAMICS (ATTACK / RELEASE)



The attack and release times (in milliseconds [ms]) can be set here for the **AGCi**, **AGCo** and **Expansion**. The AGCi has a further division into **Fast/Slow Attack** and **Fast/Slow Release**.

Fast Attack – Fast Release:

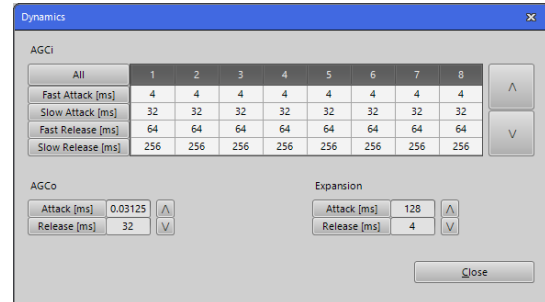
Quick compression for sudden level peaks in the input signal

Slow Attack – Slow Release:

Slow compression for adaptation of the gain to the acoustic environment

Either individual cells, an entire row or all values can be selected to change the AGCi values. The arrow buttons are used to increase and decrease the values.

On the AGCo and Expansion, individual values can be selected and increased/decreased using the arrow buttons.



AGCi	All	1	2	3	4	5	6	7	8
Fast Attack [ms]	4	4	4	4	4	4	4	4	4
Slow Attack [ms]	32	32	32	32	32	32	32	32	32
Fast Release [ms]	64	64	64	64	64	64	64	64	64
Slow Release [ms]	256	256	256	256	256	256	256	256	256

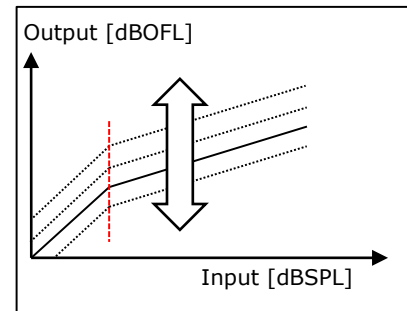
AGCo	Attack [ms]	Release [ms]
	0.03125	32

Expansion	Attack [ms]	Release [ms]
	128	4

7.4.8.1 AGCi

= Input level controlled regulation

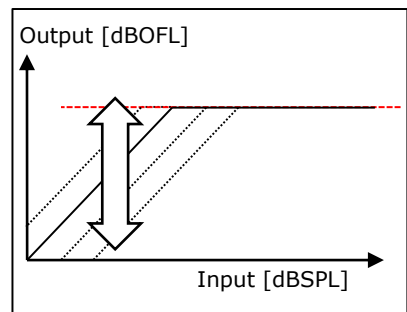
The AGCi regulates the gain of the input level in the different frequency channels (WDRC) at a certain ratio when it falls into a compression range or exceeds a determined input level.



7.4.8.2 AGCo

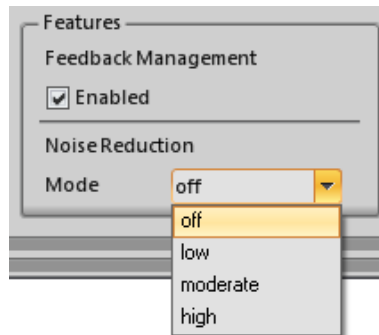
= Output level controlled regulation

The AGCo activates regulation when a certain output level is exceeded. The AGCo is used here as a limiting circuit (MPO) and defines the saturation range of the output level.



7.4.9 FEATURES

Feedback Management and Noise Reduction can be activated as further features. There are four different levels of Noise Reduction.



7.4.9.1 SUPPRESSION OF ACOUSTIC FEEDBACK

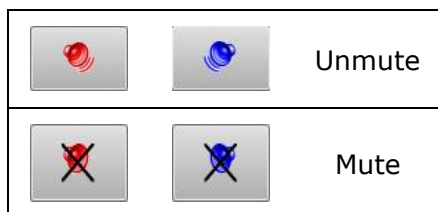
The hearing system has adaptive acoustic feedback management. Acoustic feedback, whistling, etc. are automatically minimised once the suppression of feedback is enabled. The gain of the hearing system remains unaffected and is not reduced.

7.4.9.2 NOISE REDUCTION

The hearing system is able to reduce irritating noises and artefacts by means of noise reduction. The following levels can be selected:

- Off – no noise reduction
- Low – noise reduction of 3 dB
- Moderate – noise reduction of 6 dB
- High – noise reduction of 9 dB

7.4.10 MUTE / UNMUTE



Mute and unmute buttons to activate and deactivate the muting of the hearing system (during the fitting session).

8 UNINSTALLATION



Note:

Administrator privileges are required to avoid uninstallation problems.

Close all running Windows applications before starting the uninstallation process. Any active programmes or virus scanner could affect or block the uninstallation.

Uninstalling the BHMFit contact star evo1 Fitting software:

1st option:

Click "**Start -> Settings-> Control Panel**" in the Windows task bar.

Click "**Start -> Control Panel**" in the Windows task bar.

Double-click "**Software**" in the Control Panel window.

Click "**BHMFit contact star evo1**" in the list of installed programs.

Click "**Remove**" and follow the menu recommendations.

2nd option:

Delete the current version of BHMFit contact star evo1 by selecting "**Start -> All Programs -> BHMFit contact star evo1 -> Uninstall BHMFit contact star evo1**" in the Start menu.

The installer now deletes all of the Fitting software (not the client database).

We recommend leaving the files and folders as they are, if you wish to re-install the BHMFit contact star evo1 Fitting software (otherwise, you can delete them yourself at any time).

9 UPDATE

Close all running Windows programs. Any active programs or virus scanner could affect or block the update.

Uninstall the current version of BHMFit contact star evo1 (Section 8). You can then install the new version. Proceed as for a new installation (Section 3, "Program installation"). The BHMFit contact star evo1 Installer installs the necessary files.

10 FAQs

Below are the answers to some of the frequently asked questions on **BHMFit contact star evo1** from BHM. Please contact BHM if the question you are interested in is not included here. We will be glad to answer your questions.

Q: "FirstFit" can't be selected.

A: To use the "FirstFit" a fitting session must be started.

Q: "Print/Export" can't be selected.

A: Print/Export can only be used when a fitting session is selected.

Q: What does the "Copy" function actually copy?

A: All the settings (excluding the Mode) you can see on the Fitting screen.

Q: Can both devices be adjusted simultaneously during a binaural fitting?

A: No. You can however customise one device and simply copy the settings to the other.

Q: Is the Fitting software also available as a NOAH module?

A: No, there is currently no NOAH module of BHMFit contact star evo1.

Q: Is programming necessary?

A: Our products are set up in a way that is fine for many clients in most cases. Programming of the device is not necessary if your client is happy with the settings.

Q: What does "factory settings" mean?

A: This function enables the user to restore every hearing system to its original condition as supplied. This is potentially helpful when many settings have been changed and the acoustic pattern is no longer correct. Afterwards you can continue working from defined and well-known settings.

Q: The programming cable is connected to the programming device and the hearing system – but BHMFit contact star evo1 still does not find a device.

A: Ensure that the hearing system is connected correctly and is supplied with power (feedback whistling). Make sure the connectors are fixed tightly. Try using a different device to find out whether your programming device is working fine.

Q: Can the client files that were saved with the BHMFit2 fitting software be opened in BHMFit contact star evo1?

A: Yes, There is an import function (File -> Import Data -> Import BHM Data)

We have strived to provide as much detail as possible in writing this document. Any inconsistencies pertaining to wording, fonts, content and misprints are unintentional. Please provide us with information should any corrections be necessary. We reserve the right to make changes to the content for the purposes of improvement.

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