

Manual
MA-4.100
MA-4.600
MA-2.1200

DSP power amplifiers



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Important safety instructions

Please read and observe these safety instructions and all other instructions relating to your Fohhn products before using or installing them. Always keep the instructions in the vicinity of the devices. Reading these instructions is no substitute for knowing and observing the applicable national safety regulations and standards and complying with safe working practices on site. All information provided here is based on data available at the time of publication. We expressly reserve the right to make changes.

E Explanation of terms

	Danger!	This signal word indicates a hazard with a high degree of risk which, if not avoided, could result in death or serious injury.
	Warning!	This signal word indicates a hazard with a medium level of risk which, if not avoided, could result in death or serious injury.
	Caution!	This signal word indicates a hazard with a lower level of risk which, if not avoided, may result in minor or moderate injury.

General safety instructions

All components required for mounting or suspending a Fohhn system are designed and built in accordance with the following regulations applicable in Germany: DGUV V17 (formerly BGV-C1), DGUV I215-313 (formerly BGI 810-3), DIN EN 1993-1-1 and DIN EN 1999-1-1.

This document is intended exclusively for qualified specialist personnel or persons with appropriate technical training. The information contained herein is intended for the installation, maintenance and repair of this product and requires a sound understanding of the technical aspects and the applicable safety standards. By using this product, you agree that you have the necessary expertise to install, maintain or repair it safely and properly. Any actions outside your area of expertise may pose risks and are not recommended. If you have any uncertainties or questions, please contact our technical support or an authorized dealer. The information provided here is to be understood as accompanying instructions and does not affect the ultimate responsibility of the user to ensure safe operation on site.

	Danger!	To avoid danger to life and limb, ensure that all persons involved in the assembly or disassembly of such a system have read and understood these instructions. All personnel should be familiar with the local workplace safety regulations.
	Warning!	<p>To prevent injuries caused by a collapsing or falling system,</p> <ul style="list-style-type: none"> the device must be installed in accordance with the installation instructions and the applicable safety guidelines. Only use the recommended, original Fohhn mounting accessories and never exceed their maximum load capacity. the load limit of any component used to suspend the system (including shackles, chains and hoists) must never be exceeded. In order to comply with local safety regulations, these load limits may have to be recalculated on the basis of the underlying safety factors (operating coefficients) and reduced if necessary. the device must be checked regularly for wear or loosening of the attachment. it must be ensured that the suspension points on the building or supporting structure are sufficiently load-bearing and structurally suitable. all components and devices must be carefully inspected visually before assembly. A component that shows deformations, cracks, rust, broken weld seams or other signs of use that could possibly impair its safe function must not be used under any circumstances. no one may climb on flown or stacked loudspeaker systems. it is strongly recommended to shut down and dismantle a flown system if the local wind force is 6 Bft (Beaufort scale) or more.
	Warning!	To prevent injuries from accidents, the stability of the entire system (e.g. during assembly, in the ground stack or when using tripods) must be ensured. Care must be taken to ensure that the system cannot tip over (e.g. due to sloping ground or wind) and that it is protected against being knocked over by people or vehicles, for example.
	Caution!	<p>To avoid injuries,</p> <ul style="list-style-type: none"> the appliance must be stored, set up and operated out of the reach of children. the device must be taken out of operation, labeled accordingly and secured against unintentional use if it shows visible damage, parts have come loose, it is not working properly or has been exposed to poor transport conditions (e.g. due to inadequate packaging). If necessary, contact your Fohhn dealer and the transport company immediately.

Acoustic safety instructions

	Warning!	Fohhn systems are capable of generating very high sound pressure levels, which can lead to irreparable hearing damage. To avoid possible hearing damage, never stand in the immediate vicinity of the system when it is in operation. Keep a distance of more than 5 meters from powerful Fohhn systems, but also at least 1 meter from smaller systems for the near field or small indoor spaces.
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	<p>To prevent hearing damage and damage to the device, you should avoid the following during operation:</p> <ul style="list-style-type: none"> • Acoustic feedback • Strong, permanently distorted signals • Pulse noises that can occur when another device in the signal chain is switched on or off, connected or disconnected from the system (e.g. a mixing console, an audio matrix or a controller)
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Electrical safety instructions

All Fohhn products that are or contain Fohhn power amplifiers are devices of protection class 1. They are built and certified in accordance with the VDE safety measures for electronic devices and leave our factory in a technically safe condition. The devices comply with all currently valid EMC directives: This is confirmed by the affixed CE marking.

 <p>Warning!</p>	<p>To minimize the risk of electric shock,</p> <ul style="list-style-type: none"> • the earth contact of the mains plug must never be disconnected. • the appliance may only be connected to tested earthed sockets or mains connections with a confirmed protective earth conductor. • the housing of the device must never be opened. It does not contain any components that can be repaired by the user. In the event of a defect, please contact qualified service personnel and/or your Fohhn dealer. <p>Also ensure that the local mains voltage matches the mains voltage specified on the appliance.</p> <p>To minimize the risk of electric shock or fire,</p> <ul style="list-style-type: none"> • the device may only be used in accordance with its specified degree of protection. • the ventilation slots must not be covered with objects (e.g. for rain protection).
 <p>Caution!</p>	<p>To prevent damage to the appliance, do not leave the power cable plugged in if the appliance is not going to be used for a long period of time. Pull the plug out of the socket to disconnect the appliance completely from the mains.</p>

Connections and cabling

 <p>Warning!</p>	<p>Please observe the following instructions when wiring your system:</p> <ul style="list-style-type: none"> • The wiring of loudspeaker systems should only be carried out by suitably qualified personnel. • Only use professional and properly functioning cabling and plug material. • Only use properly shielded plugs and cables with a sufficient cross-section. • Only use power cables with fully intact earthing. • Protect installed cables from unnecessary tensile forces. • Never use signal or power cables to mount, lift or secure a system. • Observe the respective pin assignment of the audio and data cabling.
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Operating conditions

 <p>Warning!</p>	<p>The device should be checked immediately by a service partner authorized by Fohhn if</p> <ul style="list-style-type: none"> • the mains socket is damaged, • a foreign object or liquid has entered the inside of the appliance, • the device is not operating normally and, for example, exhibits significant power fluctuations, • the device is damaged (e.g. after a fall).
 <p>Caution!</p>	<p>Please observe the following instructions when operating your Fohhn system:</p> <ul style="list-style-type: none"> • The permissible ambient temperature of the device during operation is between 0 °C and +40 °C. Short-term use outside this temperature range is possible but not advisable. <p>The device is intended for use in a dry environment with normal dust exposure and humidity. Please note the protection class.</p> <ul style="list-style-type: none"> • Never expose the appliance to aggressive chemical liquids or vapors. • Always ensure that the heat can be dissipated via the rear of the appliance housing. Maintain the following distances: left/right side >5 cm, rear >10 cm, top >10 cm. • Ensure that the appliance is well ventilated. • To clean your Fohhn product, use a dry or slightly damp but well-wrung cloth. Make sure that the device is disconnected from the power supply when cleaning.



Notes on abnormal operation: If the permissible operating temperature of an active Fohhn device (active loudspeaker or amplifier) is too high (over 75 °C), the device switches off to protect itself. As soon as the temperature returns to the normal operating range, it will automatically switch back on. The temperature of the Fohhn system can be monitored in Fohhn Audio Soft. If the product is exposed to direct sunlight or very high ambient temperatures, the probability of a shutdown increases.

Storage and transportation

Please note the following information:

- The device should only be transported in a case designed for this purpose.
- Store the device in a dry environment with a constant ambient temperature to avoid condensation.
- The permissible ambient temperature range for storing the device is -10 °C to +70 °C.
- Condensation may form on the surface of the appliance due to temperature fluctuations during transportation and storage. Before operating the device, check the surface for signs of moisture. If this is the case, allow the unpacked appliance to acclimatize for two hours before putting it into operation.

The product

Product description

The digital multi-channel DSP power amplifiers of the MA-SERIES are equipped with FOHHN AUDIO DSPs (digital signal processors). These DSPs include a programmable EQ, delay, X-over and dynamics processor for each input channel and each output channel.

The MA-SERIES DSP power amplifiers are equipped with four analog inputs and four Dante inputs as standard. The standard outputs are connection terminals for up to 3.3 mm² conductors. All power amplifiers (regardless of the number of output channels) always have four input channels with DSP input processing. Each input channel can be either Dante or analog. The 4 input channels can be mixed together as required using a 4 x 4 matrix in the DSP.

In addition, presets with all the necessary speaker protection data and sound optimizations for all FOHHN loudspeaker systems are stored. These optimizations and multiband limiting ensure maximum playback quality and operational reliability. User presets that you have created yourself can also be saved.

Thanks to the integrated FOHHN AUDIO DSP, the power amplifiers can be networked, remote-controlled and remote-monitored. With a single control software, FOHHN AUDIO SOFT, you have access to all DSP functions and presets. (The latest version of the software is available for free download at www.fohhn.com).

At the heart of every power amplifier is a digital power supply unit, which is largely responsible for the sound. It constantly analyzes the mains voltage and processes it accordingly (power factor correction). The power supply unit enables the power amplifiers to deliver as much energy as quickly as possible in order to reproduce the full dynamic range of live music across the entire audible frequency spectrum - while converting as little energy as possible into heat. The result is a significant increase in the available peak power. Thanks to an integrated microprocessor, the power supply unit is equipped with measuring and monitoring functions. Important factors such as temperature, mains voltage and load are permanently monitored and controlled accordingly. The output stage is switched off in the event of overvoltage.

The fans of the power amplifiers are temperature-controlled and have been optimized for particularly quiet operation. The fans are not operated when idling. The fan and filter foam can be cleaned manually and without tools.

An integrated inrush current limiter enables several connected power amplifiers to be switched on simultaneously within a rack. This function makes handling much easier in larger installations with several systems.

The power amplifiers are also equipped with two programmable switching contacts (switch) for remote control and simple integration into the building technology.

Overview of different product versions of the MA-SERIES

MODEL	POWER per channel and load						
	2 Ω	3 Ω	4 Ω	8 Ω	16 Ω	70V	100V
MA-4.100	-	-	65 W	35 W	18 W	-	-
MA-4.600	-	-	600 W	300 W	150 W	600 W	600 W
MA-2.1200	-	-	1200 W	600 W	300 W	1200 W	1200 W

Scope of delivery

Every product is checked to the highest quality and safety standards before shipping. Please inspect your product carefully for transport damage and inform your dealer and the transport company immediately in the event of damage. Please check that the packaging contains all the components belonging to the device.

Your Fohhn system is included in the scope of delivery:

- 1 x MA-series DSP power amplifier
- 1 x mains cable with IEC connection socket
- 2 x rack bracket
- 1 x Operating instructions (or available online at www.fohhn.com)

If the scope of delivery is not complete, please contact your Fohhn dealer!

Professional rack mounting

For professional installation in mobile 19-inch racks or control cabinets, the power amplifier is equipped with appropriate mounting brackets at the front and rear (optional). The housing is designed to be torsion-resistant. Please also ensure that the power amplifier is sufficiently ventilated and cooled from all sides during operation. At least 1U must be left free at the top and bottom between rack-mounted amplifiers.

Each device is supplied with two mounting brackets (mounting bracket set).



An optional 19" rack connector, article 8022-00000, is available for mounting two Fohhn 9.5" devices next to each other in a 19" rack.





An optional 19" mounting bracket with 6 holes for Neutrik D series sockets is available for mounting an MA-Series amplifier in a 19" rack. Fohhn article 8023-00000.



Connection instructions and operating elements

Cables should be connected with the power amplifier switched off. The mixing console should also be switched on before switching on the power amplifier. This avoids annoying and often dangerous switch-on noises.

USB-C configuration port

The MA-SERIES power amplifiers are equipped with a USB-C socket on the front of the housing. This enables optional, direct configuration of the device using a PC and FOHNN AUDIO SOFT control software without using a network.

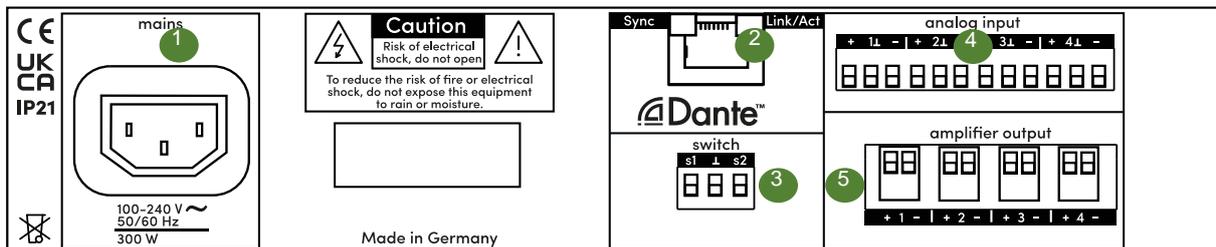
To connect a network of several devices, the devices must be connected to an Ethernet network via the RJ45 socket (2).



Figure 1 USB-C socket (bottom left) on the front of the housing

Connections

The MA-SERIES DSP power amplifiers have the following connections on the rear of the housing as standard:



(1) mains

Used to connect the IEC power cable supplied.

The power amplifier is only completely disconnected from the mains when the mains plug is removed!

(2) Dante + Control

Signals with the Dante digital audio interface are fed in via this RJ-45 input.

The FOHNN-NET remote control data is also fed in here via the network



(3) switch

These terminals are used as switching contacts for switching presets. These can be configured in FOHHN AUDIO SOFT (see section 3.4.2 "Switch contact").

(4) analog input CH 1/2/3/4

Analog audio signals and microphones can be connected via these terminals. A switched phantom voltage of 24V is optionally available.

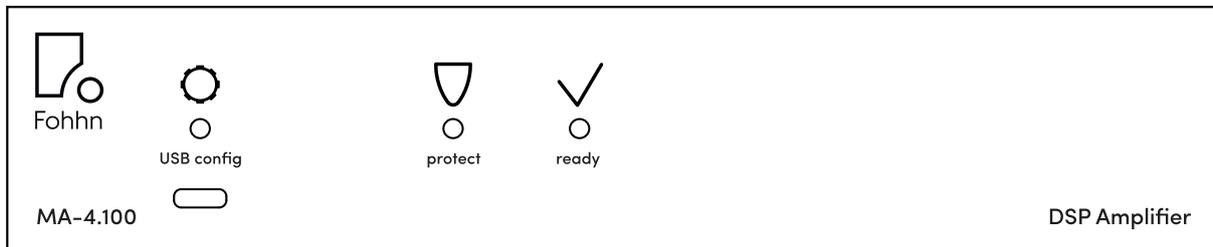
(5) amplifier output CH 1/2/3/4

The loudspeaker systems are connected to these terminals (up to 3 mm² flexible or 3 mm² rigid conductors).

All product versions of the MA-SERIES are available with input interfaces for the Dante™ digital audio network and for 4 x analog audio signals as standard.

Status displays

The status of the MA-SERIES power amplifiers is indicated by illuminated symbols on the front of the housing:



Status LEDs of a 4-channel power amplifier on the front panel

USB config (cogwheel symbol)

This symbol lights up when the power amplifier is connected to a control computer via the USB-C socket.

protect

This symbol lights up if there is an error during operation.

ready

This symbol lights up when the power amplifier is ready for use.

The MA-SERIES power amplifiers also have two LEDs on the rear of the housing:

sync

This green LED lights up when the DSP amplifier is synchronized with the Dante network.

Link/Act

This green LED flashes when the DSP power amplifier is exchanging data with the network.

Commissioning

You can remotely control and monitor the functions of the digital signal processors (DSPs) integrated in your FOHHN power amplifier via the Ethernet network. To do this, you need a Windows PC with FOHHN AUDIO SOFT control software (version 6.2.2 or later) installed.

Cabling and ID assignment

To control several MA-SERIES power amplifiers, each system in the network must be assigned its own specific ID. This ID can be used to uniquely identify and control each individual FOHHN power amplifier in FOHHN AUDIO SOFT.

All power amplifiers are factory-set to ID 1.



IDs assigned twice lead to an ID conflict. In this case, it is no longer possible to control the affected output stages.

Assignment of IDs for individual output stages:

To assign an ID, each power amplifier must be connected to the FOHHN AUDIO SOFT.

Proceed as follows:

Connect the FOHHN power amplifier to the mains.

Connect the power amplifier to a PC via the USB-C socket or via an Ethernet network.

Switch on the power amplifier.

Start FOHHN AUDIO SOFT. The connection used is automatically recognized.

When you open FOHHN AUDIO SOFT, an automatic search starts which lists the correctly connected FOHHN power amplifiers.

If no output stage is displayed, check all connections and restart the search. Note the ID search range.

Proceed as follows:

In the Devices menu item, click on the Search devices in the network dialog.

If no power amplifier is still displayed, check the power supply and/or the network cabling of your power amplifier. Then repeat step 1.

If an output stage is detected, it appears with ID 1 (factory setting).

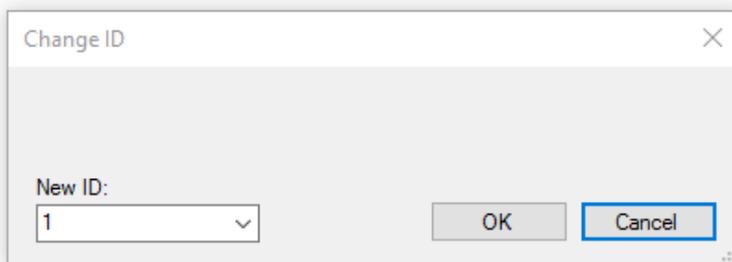
To change the ID directly in the Search devices in the network dialog, proceed as follows:

Right-click on an output stage in the list display in the dialog.

Select the Change Fohhn-Net ID command in the context menu.

Enter a new ID for the output stage in the dialog of the same name. Make sure that this ID has not yet been assigned.

Confirm the entry with Ok: The FOHHN power amplifier now receives the newly assigned ID.



You can also change the ID of a FOHHN power amplifier at any time during operation. To do this, the system must be in FOHHN-NET. Proceed as follows:

Open the device list via the button of the same name in the toolbar or via the View menu.

Right-click on an output stage in the list display.

Select the Change Fohhn-Net ID command in the context menu.

Enter a new ID for the output stage in this dialog.

Confirm the entry with Ok: The FOHHN power amplifier now receives the newly assigned ID.



Further information on setting up a FOHHN-NET and assigning FOHHN-NET IDs can be found in section 4.1 "Setting up the FOHHN-NET" in the FOHHN AUDIO SOFT user manual.

Loading the speaker presets

The MA-SERIES power amplifiers are delivered without preset limiters. To ensure the safe operation of all connected speakers, appropriate speaker presets must therefore be loaded in FOHHN AUDIO SOFT. These are stored as examples in a preset list on the device. In addition, all available speaker presets can be loaded from a database.

Further information on loading the speaker presets can be found in section 4.2 "Presets" in the FOHHN AUDIO SOFT user manual.

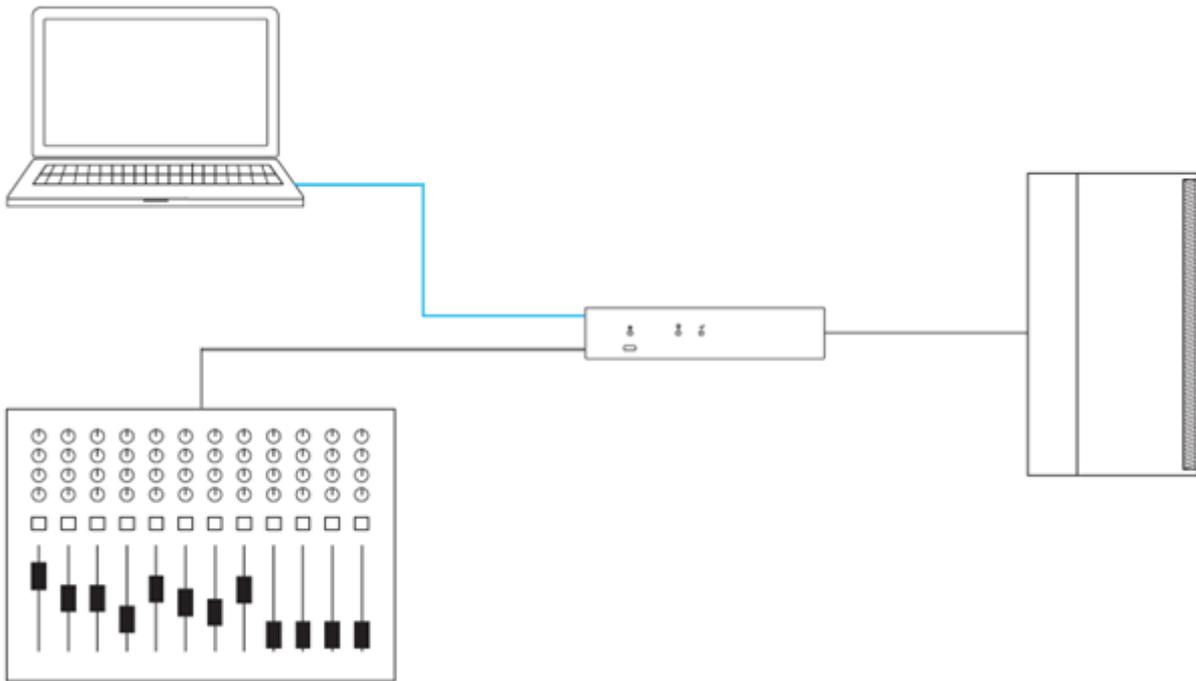
Updating the firmware

In addition to FOHHN AUDIO SOFT, the firmware of your devices and the speaker database determine the range of functions of your FOHHN system. There will be updates for these data sets from time to time, which you can download within FOHHN AUDIO SOFT (Internet connection required!).

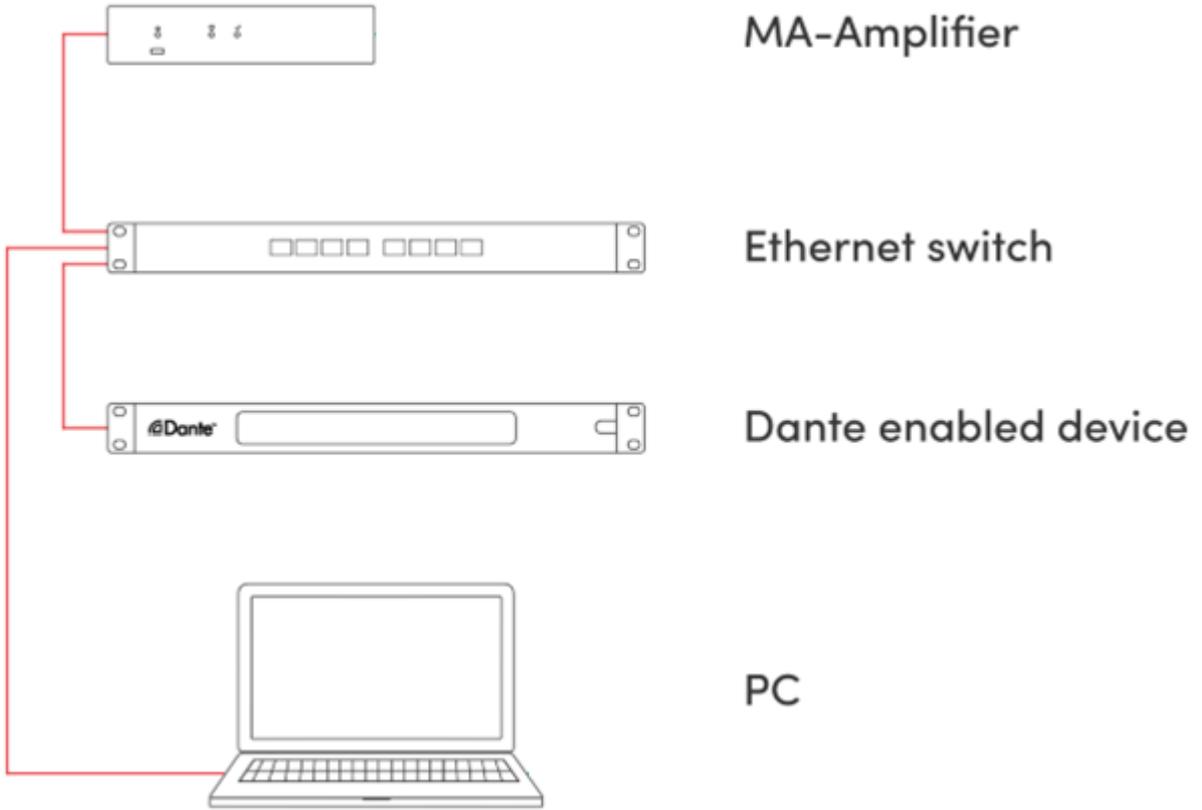
For more information, please refer to section 6.1 "Updating the firmware" in the FOHHN AUDIO SOFT user manual.

Connection of all devices

Connect your power amplifier to the audio source and the loudspeaker systems via the corresponding inputs and outputs (see section 3.2 "Connection instructions and operating elements").



Wiring a MA-SERIES power amplifier via the analog inputs

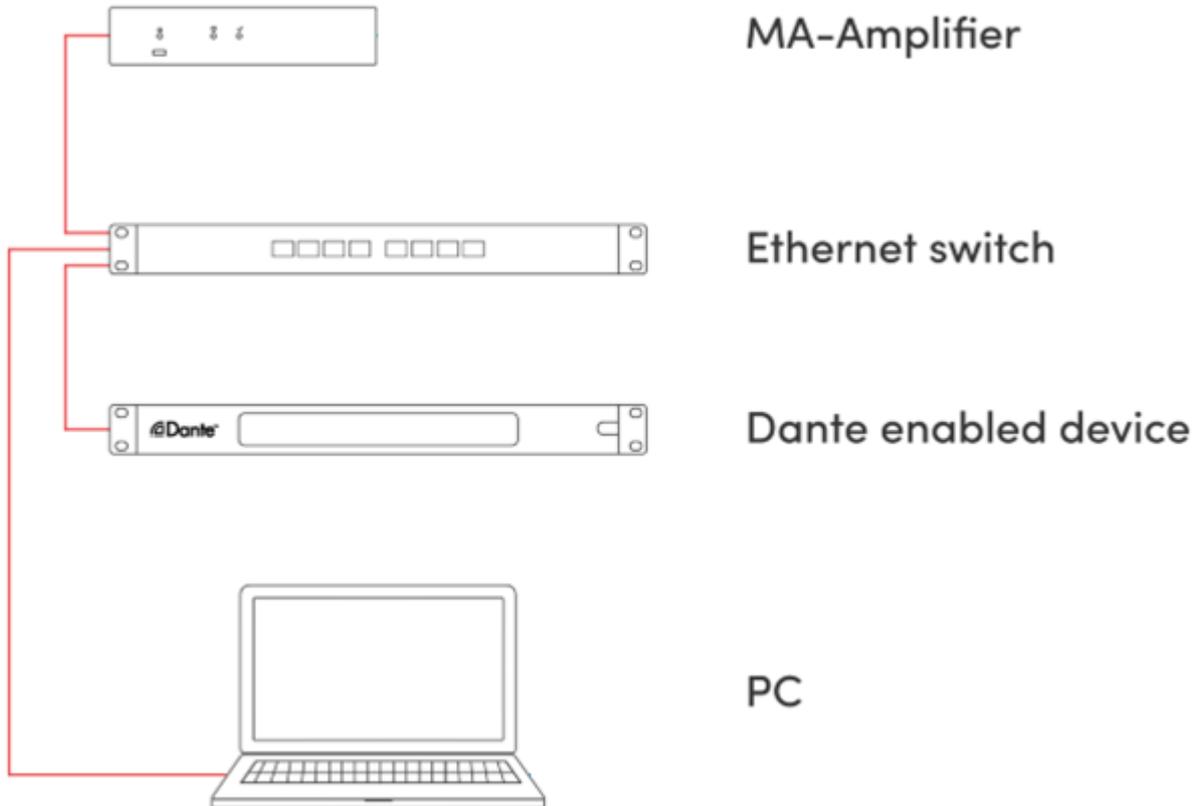


Wiring a MA-SERIES power amplifier via the Dante input

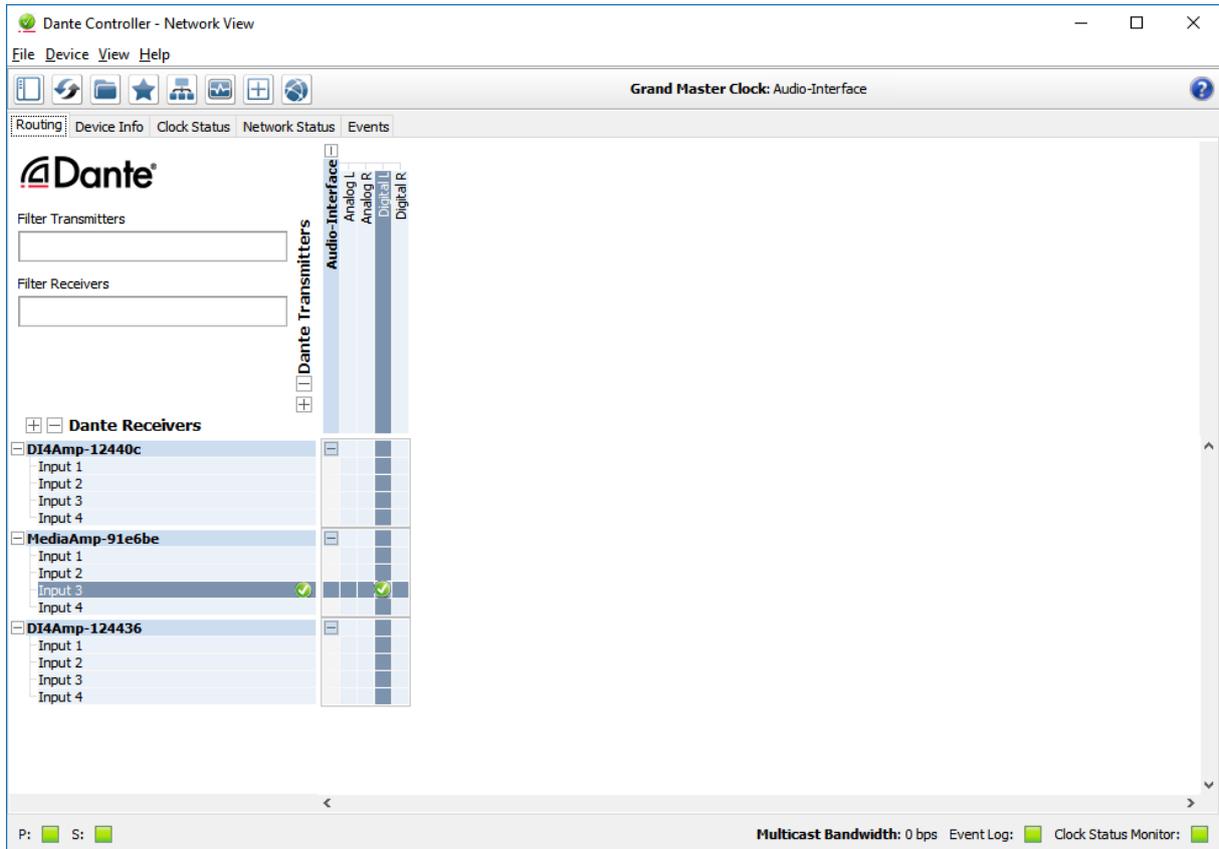
Integration into a Dante™ network

Power amplifiers with a Dante™ interface are connected to the Dante™ audio network via an Ethernet switch. The MA-Series power amplifier is controlled via this network or via the USB socket. In addition to FOHHN AUDIO SOFT, the software Dante Controller from Audinate is required for control on the PC (see section 3.3.3 "FOHHN-NET cabling and ID assignment").

You can download the Dante Controller software free of charge here:
<https://www.audinate.com/products/software/dante-controller>



Example: Control of MA-SERIES power amplifiers via computer and Ethernet switch with simple cabling



All parameters of the Dante™ Input Interface (e.g. audio routing within a Dante network) must be configured using the Dante Controller software.

Firmware update of the Dante™ interface

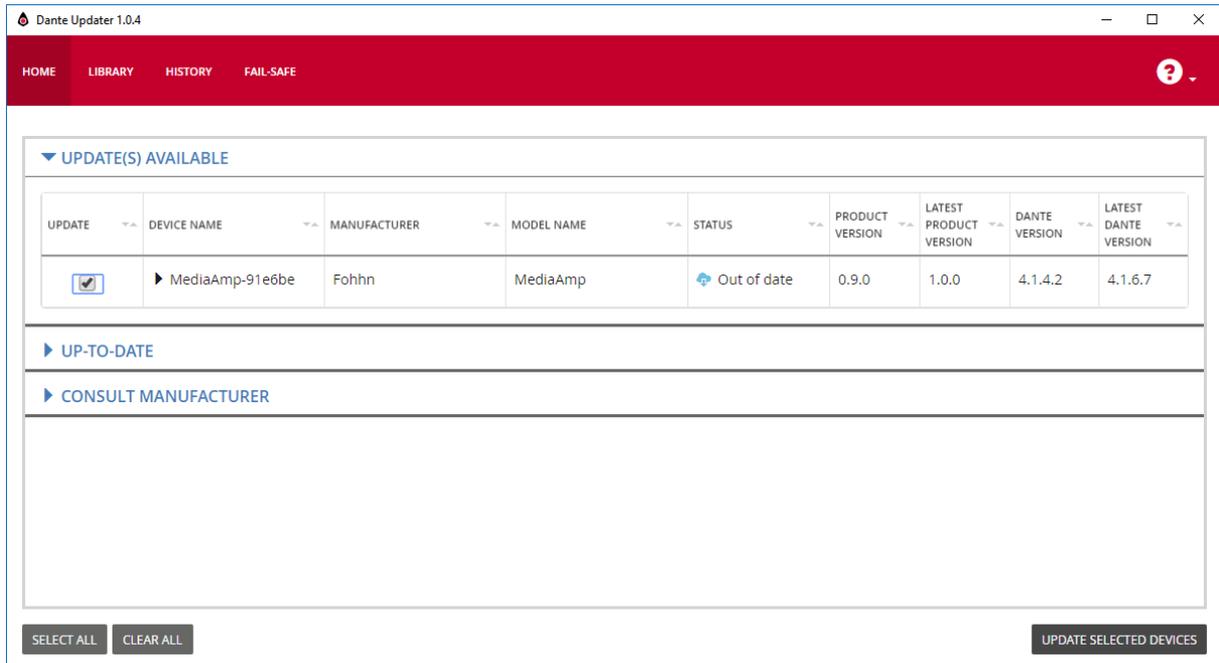
To update the Dante firmware of the interface, the software Dante Controller 4.2 or newer is required.

You can download this software from the Audinate website:

<https://www.audinate.com/products/software/dante-controller>

Carry out the update as follows:

1. start the Dante Controller.
2. select View -> Dante Updater.
3. select the Dante devices found that are to be updated and click on UPDATE SELECTED DEVICES.



In the LIBRARY section, you have the option of saving the Fohhn Dante firmware locally on your PC, so that an update is possible even without an Internet connection.

The Dante Updater only updates the firmware of the integrated Dante module - the firmware of the FOHHN device is independent of this and may need to be updated separately!

Here you will find all operating instructions for Dante™ from Audinate:
<https://www.audinate.com/resources/technical-documentation>

Helpful instructions for determining the Dante device if the IP address is not known can be found here:
<https://www.audinate.com/faq/how-can-i-locate-dante-device-static-ip-address-unknown-subnet>

Rename device and output channels

For better identification within FOHHN AUDIO SOFT, it is advisable to give the individual power amplifiers and/or their output channels individual names in an installation with several MA-SERIES products. To do this, proceed as follows:

Open the Device list or Devices view using the entries of the same name in the View menu or the buttons in the toolbar.

Right-click on the desired output stage in the list (device list) or in the workspace (devices).

Select the Rename device entry in the context menu.

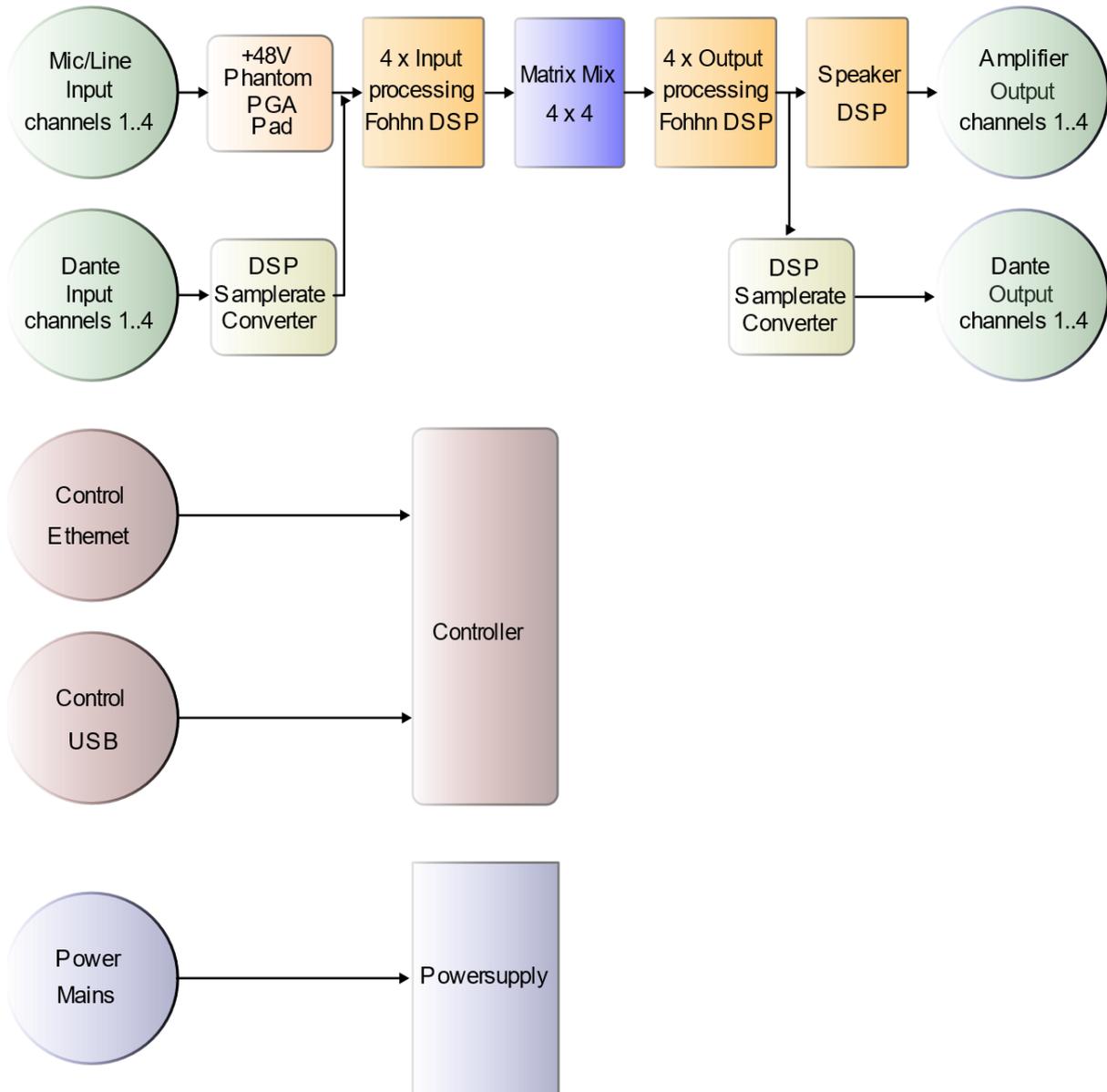
Now enter a new name for the device in the Rename dialog and complete the entry with OK.

To rename the individual output channels, right-click on the desired output stage in the Devices view and select Rename channels. You can also rename individual output channels in the Output channels view in the same way.

The new name is now adopted in the Device list, Devices and Channels views.

Function

Block diagram of the MA-Series amplifier



Inputs

Analog line signals and microphones can be connected to the 4 balanced input terminals.

The inputs are configured using FOHNN AUDIO SOFT in the input channels view.



If the +24dB (Mic) switch is active, the respective input is configured as a microphone input and a microphone preamplifier is activated for the channel. The input impedance is 10kOhm. The input gain of the preamplifier is +24 dB and can be increased to +36dB with the +12dB switch. A +24V phantom power can be switched on with the phantom power switch.

If the +24dB (Mic) switch is not active, the respective input is configured as a line input. The input impedance is 10 kOhm. For small input signals, the gain can be increased by 12dB using the +12dB switch.

The maximum input level that can be transmitted without distortion is +15 dBu. If +24dB and/or +12dB is activated, this level is reduced accordingly.

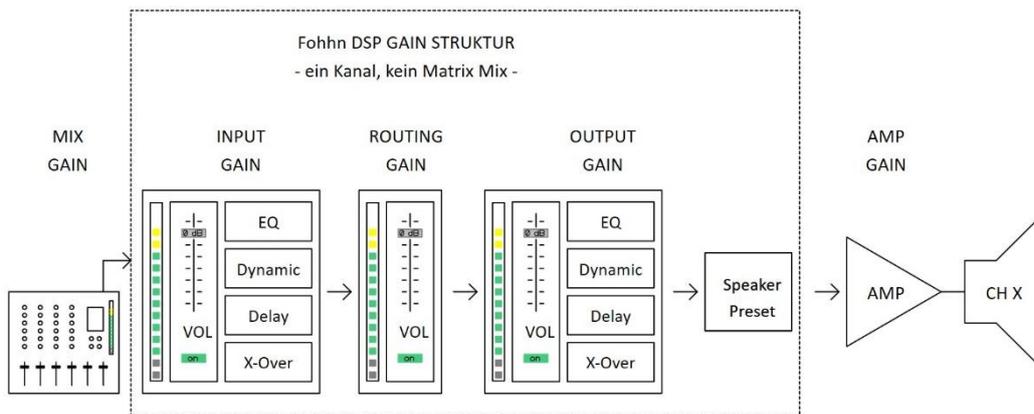
The complete input configuration is saved in the user preset and can be loaded again if required.

Outputs

The signals from the power amplifier are connected to the 4 output terminals. The loudspeakers are connected here.

In addition, output channels 1 to 4 are routed to 4 Dante output channels after the Fohhn DSP output processing but before the Speaker DSP. Here, the respective channel mix can be made available to other amplifiers or other Dante devices via the Dante network.

3.4.4 Gain structure and signal chain



Overview of the signal chain of a channel of the MA-SERIES amplifiers

Many gain options inside and outside the FOHNN DSP allow a high degree of flexibility - even in complex situations where matrix mix functions are required.

Please remember to check and adjust all levels at all points in the signal chain up to each output channel in order to achieve the best possible sound reinforcement result.

The following notes and examples illustrate the procedure.

Important notes:

The best level is high enough to prevent noise and low enough to keep a reserve for peaks.

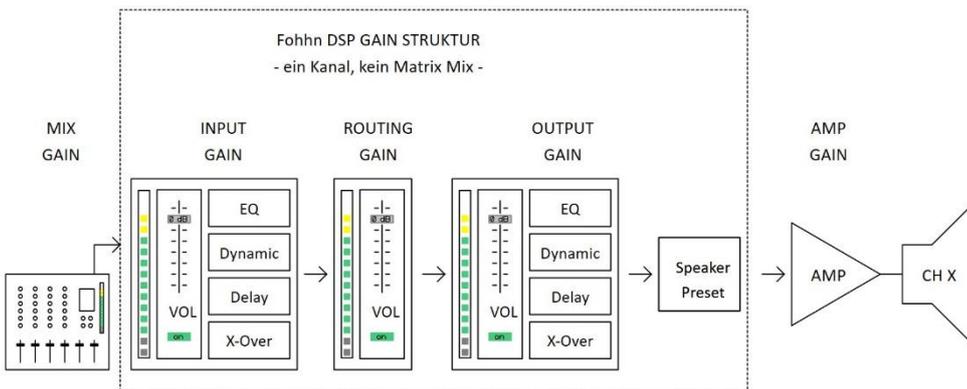
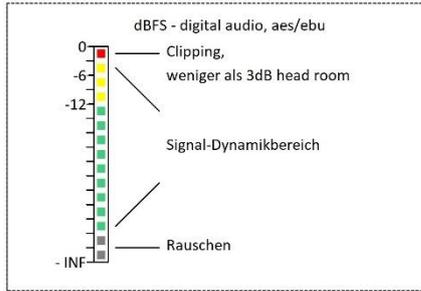
SPEAKER PRESETS

The use of FOHHN speaker presets ensures, among other things, that no audible distortion can occur within the FOHHN DSP.

ANALOG INPUTS

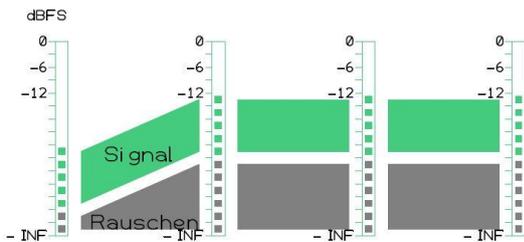
When using analog input signals, special care must be taken with regard to the level. The conversion between analog and digital audio signals always requires a definition for 0 dBFS. FOHHN defines: +15 dBu corresponds to 0 dBFS. However, this definition and the associated relationship between the levels of analog and digital audio signals can vary greatly, e.g. between manufacturers of mixing consoles.

Digital levels:



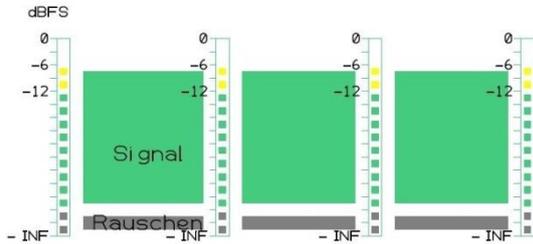
Example 1

Standard signal chain, input, routing and output gain 0 dB
-> no change in the input signal level



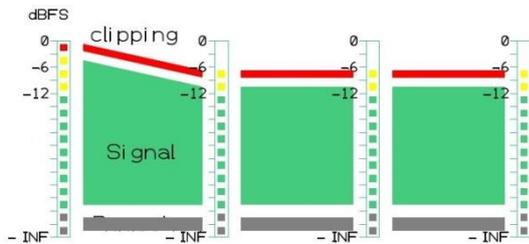
Example 2

Input level too low; high input gain also amplifies the noise



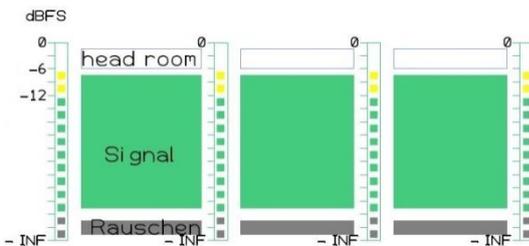
Example 3

Too high a level leads to clipping. Audible distortion cannot be prevented afterwards by lowering the level!



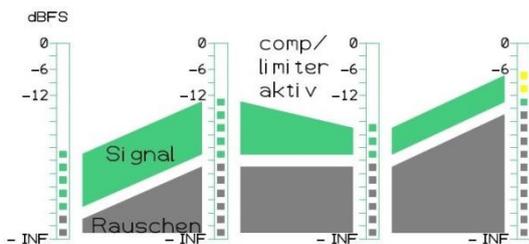
Example 4

An incorrect gain structure leads to a loss of signal quality, the noise level is increased!



Example 5

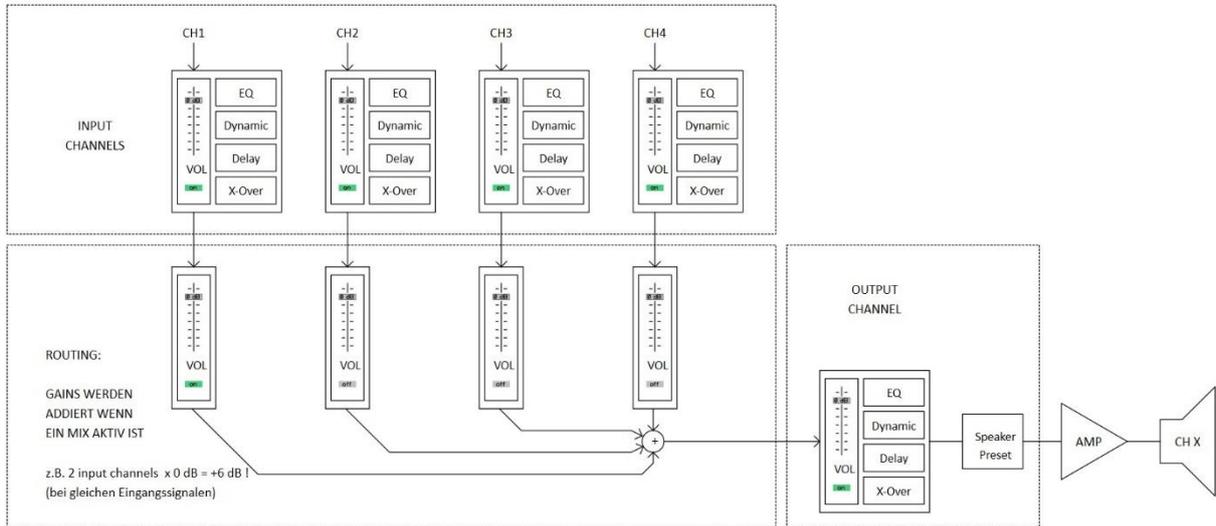
Optimum level for good signal quality and sufficient reserve for peaks



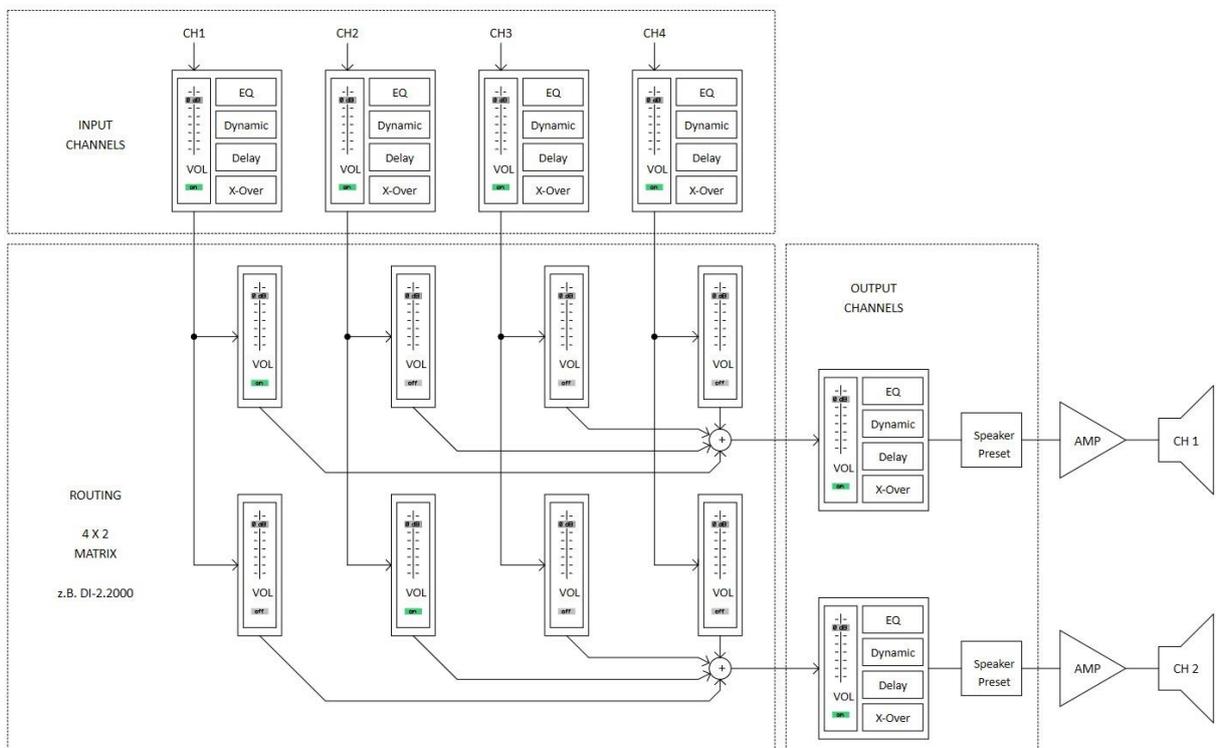
Matrix functions and DSP routing

The MA-4.100 contains a 4 x 4 routing matrix in which all 4 input channels can be mixed to all 4 output channels with variable gain. Each of the 16 nodes contains the function Gain +12 dB ... -80dB, mute and polarity 1 / -1.

Fohhn DSP - Routing matrix functions

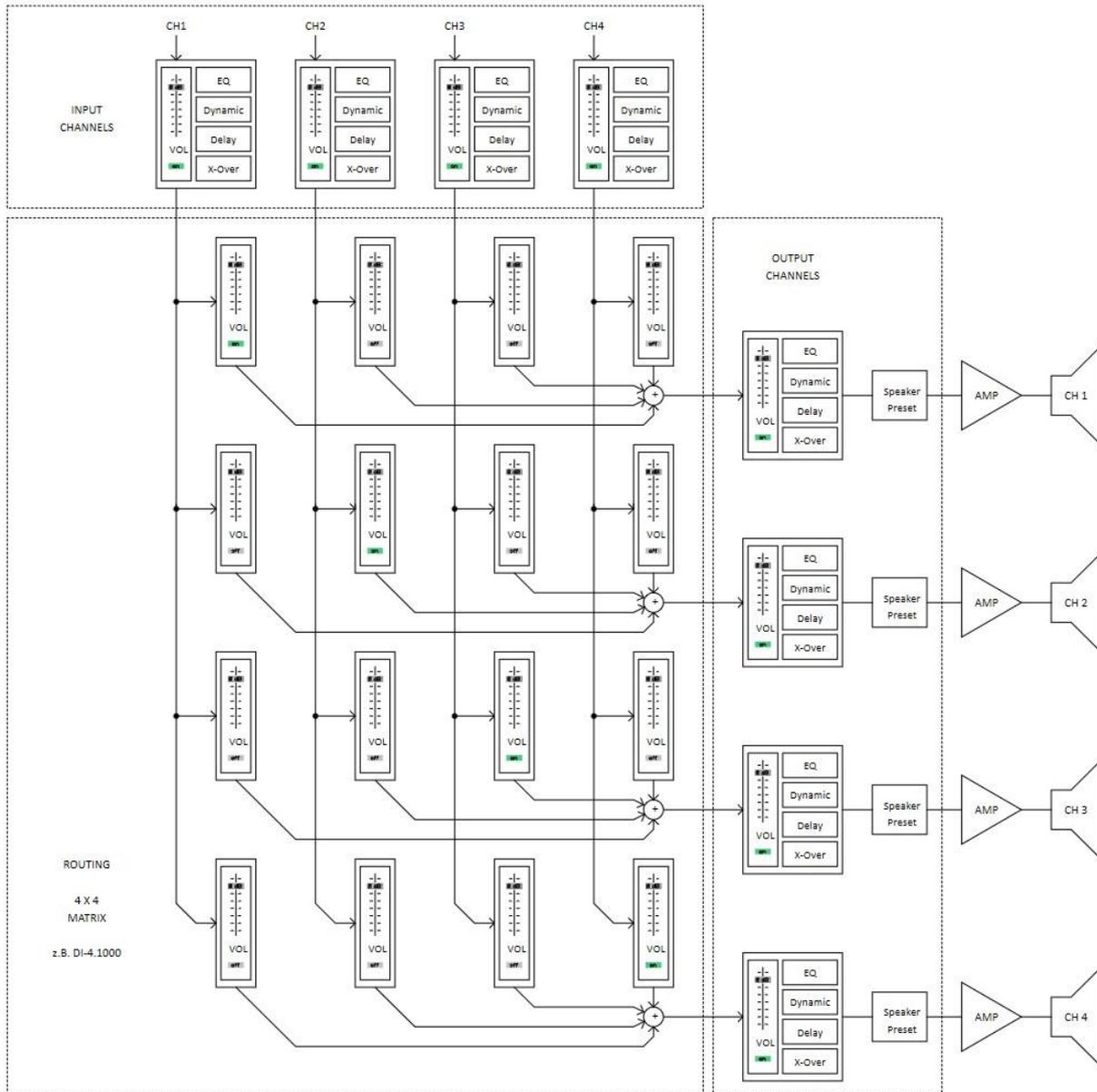


Four input channels are mixed into one output channel.
The mix level of each input can be adjusted individually with the corresponding routing gain.



Four input channels are mixed to form two output channels.
The mix level of each input can be adjusted

individually, separately for each output, with a routing gain.



Four input channels are mixed to four output channels. The mix level of each input can be adjusted individually, separately for each output, with a routing gain.

Further functions

Auto Power Save

The MA-SERIES power amplifiers have a configurable mode at to save energy and extend the service life of the device. If no audio signal is present, the power amplifiers switch to a power save mode. As soon as an audio signal is present, they are ready for use again. In power save mode, the power consumption of the amplifiers is < 5 W and no fan is operated.



The time until switching to economy mode can be set anywhere between 1 second and 12 hours. The mode can also be deactivated completely.

We recommend using the Auto Power Save function with a switch-off time of 10 seconds! This function keeps the device cool even during short pauses and thus prevents thermal limiting. In addition, the noise is completely suppressed during pauses.

How to set the Auto Power Save mode in FOHHN AUDIO SOFT:

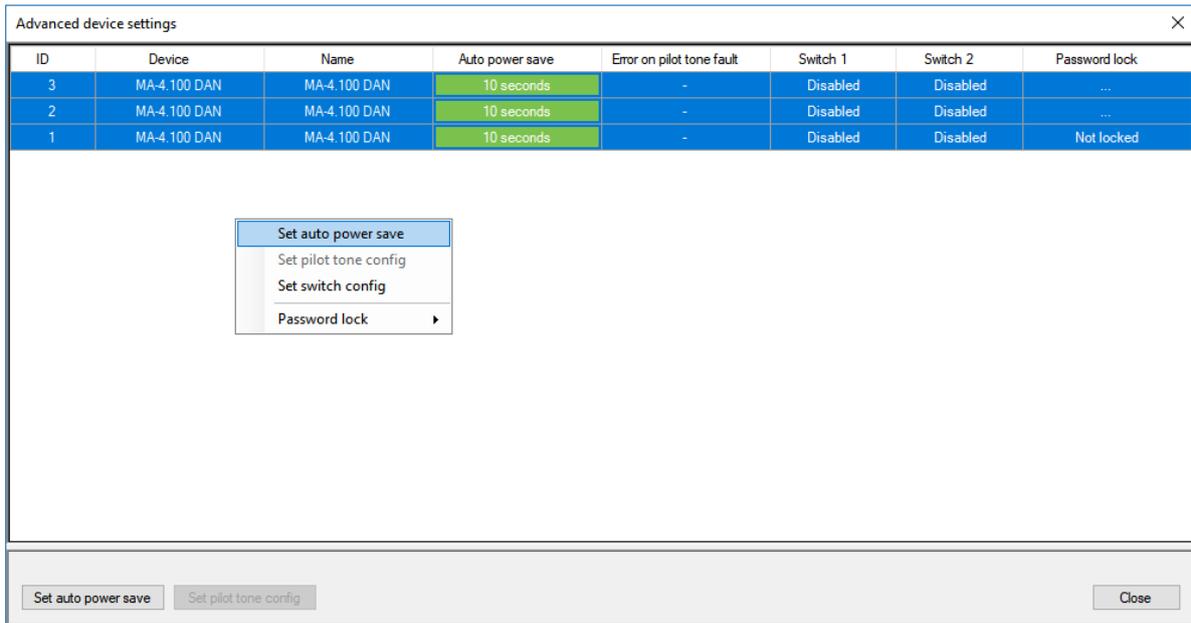
In the Device list view, select one or more output stages from and right-click to open the context menu.

Select the Settings entry here. The Advanced device settings configuration dialog opens.

The screenshot shows the FOHHN AUDIO SOFT software interface. At the top, there is a menu bar with options: Datei, Ansicht, Geräte, Eigene Bedienelemente, Beam Steering, Fenster, and Einstellung. Below the menu bar, there is a toolbar with icons for Geräteliste, Geräte, Eingangskanäle, Ausgangskanäle, Lautsprecher, and Eigene Bedienelemente. The main area displays a table with three columns: Gerät, Name, and ID. The table contains three rows, all with the value 'MA-4.100 DAN' in the first two columns and '1', '2', and '3' in the ID column. A context menu is open over the first row, listing several options: Offline-Geräte neu zuweisen, Daten aus den Geräten erneut zurücklesen, Presets laden, Presets speichern, Fensterpositionen (with a right-pointing arrow), Markierte Geräte entfernen, Einstellungen (highlighted in blue), and Lautsprecher-Presets verwalten.

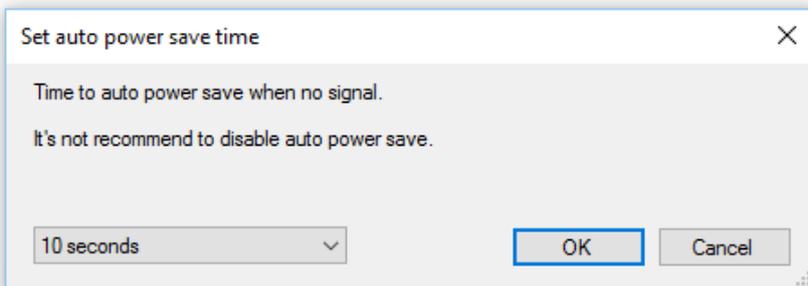
Gerät	Name	ID
MA-4.100 DAN	MA-4.100 DAN	1
MA-4.100 DAN	MA-4.100 DAN	2
MA-4.100 DAN	MA-4.100 DAN	3

- Offline-Geräte neu zuweisen
- Daten aus den Geräten erneut zurücklesen
- Presets laden
- Presets speichern
- Fensterpositionen ▶
- Markierte Geräte entfernen
- Einstellungen**
- Lautsprecher-Presets verwalten



Select one or more output stages here and call up another context menu by clicking the right mouse button.

Select the Set auto power save entry here. The Set auto power save time window opens. (You can also open this window via the button of the same name at the bottom left of the Advanced device settings dialog).



Select the desired switch-off time from the drop-down list at the bottom left and confirm your selection with OK.

Note: When acoustically calibrating your speaker systems, a switch-off time that is too short can lead to inaccuracies. We recommend a switch-off time of one hour or longer while you are taking your measurements.

Switching contact

The MA-SERIES power amplifiers have two contact inputs (see section 3.2 "Connection instructions and operating elements") which can be used to trigger preset switching.

This switching contact can be configured as a changeover switch in FOHHN AUDIO SOFT:

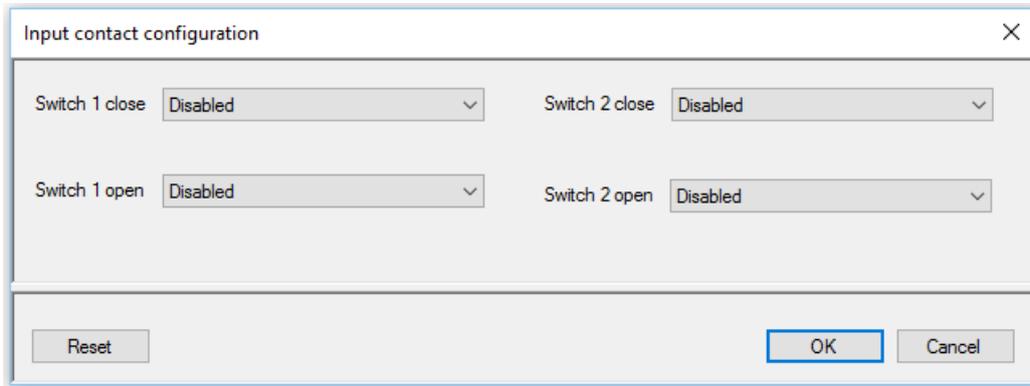
Select one or more output stages in the Device list view and call up the context menu by clicking the right mouse button.

Select the Settings entry here. The Advanced device settings configuration dialog opens.

Select one or more output stages here and call up another context menu by clicking the right mouse button.



Select the Set switch config entry here. The Input contact configuration window opens.



Use the drop-down lists to select a setting for the "Close" (Switch 1/2 close) and "Open" (Switch 1/2 open) statuses: For example, you can deactivate the respective state here (Disabled) or load one of up to 100 presets (Load Preset).

Confirm your selection with OK.

The selected presets are also loaded when a power amplifier is switched on according to the status of the switching contact ("Close" or "Open").

We recommend that you first save all user presets before configuring the switching contacts!

Further information on saving user presets can be found in the separate FOHNN AUDIO SOFT operating instructions. You can download these from the Fohhn website: www.fohnn.com

Password lock

The MA-SERIES power amplifiers and their settings can be password-protected against subsequent changes. You can set this password lock via FOHNN AUDIO SOFT.

Further information about the password lock can be found in section 6.6 "Password lock" in the separate FOHNN AUDIO SOFT operating instructions. You can download these from the Fohhn website: www.fohnn.com

Technical data

	MA-4.100	MA-4.600	MA-2.1200
Amplifier technology	Class D		
Output power	4 x 65 W / 4 Ohm	4 x 600 W / 4 Ohm	2 x 1200 / 4 Ohm
	4 x 35 W / 8 Ohm	4 x 300 W / 8 Ohm	2 x 600 / 8 Ohm
	(1 kHz, THD+N < 1 %)		
Minimum load impedance	4 Ohm	4 Ohm	
Input channels	4		
Amplifier outputs	4	4	2
DSP routing (matrix)	4 x 4	4 x 4	4 x 2
Frequency response	20 Hz - 20 kHz		
Signal/noise Ratio	>103 dB/A		
THD+N	0,08%	0,15%	
	(1 kHz, 8 Ohm, 3 dB below clipping level)		
Dynamic range	>120 dB		
Remote control	Fohhn-Net over Ethernet, USB-C, Fohhn Audio Soft		
Remote monitoring	Temperature, Protect, Power Supply, Fohhn-Net, Fohhn Audio Soft		
Switching contact	Load preset, standby on/off		
Password protection	Yes		
Auto Power Save	yes, time adjustable 1 s to 12 h, or never active		
Protective circuit	Overvoltage protection, overcurrent protection, overtemperature protection, short-circuit protection,		
	DC protection, switch-on delay, soft start and inrush current limitation		
Power supply	100 - 240 V AC 50/60 Hz, Universal power supply unit with power factor correction (PFC)		
Power consumption:			
- Maximum (RMS)	240 W	700 W	
- idle	7 W	45 W	
-Auto Power Save	2 W	2 W	
- Standby	2 W	2 W	
Heat dissipation	Maximum 15 W, 51 BTU/h, 13 kcal/h	Maximum 120 W, 410 BTU/h, 104 kcal/h	
	(Pink Noise, 6 dB crest factor, 1/4 Pmax)		



Temperature range	0 - 40°C	
Cooling	Temperature-controlled fan	
Weight	1.2 kg	5.2 kg
Dimensions (W x H x D)	1 U / 1/2 19", 211 x 45 x 170 mm	1 U / 19", 440 x 45 370 mm

Controller	
Digital signal processors	1
Independent limiters	20
Selective 3-band limiting	bass/mid/high
Band-specific time constant	Yes
Filter technology	80-bit double precision
Entrance	Analog or Dante
Input DSP processing	Yes
FIR filter	Yes
Input Gain	-80 dB - +12 dB
Routing Gain	-80 dB - +12 dB
Output gain	-80 dB - +12 dB
EQ	8 x 10 fully parametric filters each
	Gain +/-12 dB, frequency 10 Hz - 20 kHz, Q 0.1 - 100
Limiter, Compressor	8
Noise Gate	8
X-over	8 x Linkwitz/Riley 4th order, 24dB/octave
Delay	4 x 0 - 145 ms (0 - 50 m) Outputs,
	4 x 0 - 30 ms (0 - 10 m) Inputs
User presets	100
Speaker presets	100
System latency	1.2 ms
Connections and controls	
USB Config	1 x USB-C socket
Mains connection	1 x C14 IEC plug
Switching contact 1 & 2	1 x Phoenix 3-pin
Input Interface (Analog)	
Inputs	4 x analog
Signal inputs	Analog, max. level +18 dBu, phantom power (24 V DC) switchable
Frequency response	20 Hz - 20 kHz
THD	< 0.005 % typ.
	< 0.003 % 1 kHz 0 dBu



Signal to noise ratio	> 108 dB/A
Input impedance	10 kOhm
Latency	1.0 ms

Input Interface (Dante)			
Inputs	1 x RJ-45 100BASE-T Ethernet, Dante, 4 x 48kHz		
Latency	Dante +0.6 ms		
Output option (terminal)			
Outputs	1 x Phoenix 8-pin	1 x Phoenix 8-pin	1 x Phoenix 4-pin
Conductor cross-section	max. 3.3 mm ² flexible, 3.3 mm ² rigid		
Displays (front)			
Ready LED	blue = power on, flashing blue = signal		
Protect LED	red = Error / Protect, flashing red = Standby		
USB config LED	blue = host, setting via USB		
Displays (back)			
sync / Link/Act LED	Remote control, Dante sync		



Troubleshooting

The following table describes how you can identify errors and which remedial measures are recommended.

Problem	Possible causes	Possible remedy
No sound can be heard. However, the audio signal is present.	The input and output routing in the user DSP is not correct.	Check the DSP settings in FOHHN AUDIO SOFT.
	The cable connection between the power amplifier and the loudspeaker is defective or not plugged in.	Check the cable or connect the speaker to the power amplifier.
The power amplifier is not recognized by FOHHN AUDIO SOFT.	Several products have the same FOHHN-NET ID. (An ID conflict is displayed in FOHHN AUDIO SOFT).	Change the ID - no ID may appear twice (see 3.3.4 "Fohhn-Net cabling and ID assignment").
	The ID search area is restricted.	Extend the search range from ID 1 to 254.
	The USB or network connector (see 3.3.3 "Configuration") is not plugged in.	Connect the device to the computer via USB or network.
The LED ready and the symbols on the front of the housing do not light up.	No supply voltage available	Measure the mains voltage at the socket and check the fuse.
	230 V not available, mains fuse tripped	Measure the mains voltage at the socket and check the fuse.
The protect symbol lights up permanently.	There is an operating error.	Contact the FOHHN AUDIO AG service department immediately.
Distortion (clipping) can be heard.	No speaker preset is loaded	Load the speaker preset of the speakers used in FOHHN AUDIO SOFT.
	The impedance at the output is too low. Short circuit.	Check the impedance of the speakers (all outputs). Check all outputs for a short circuit.
	Input overloaded	Check the input level.



Service and repair

Only persons who have been instructed and trained by **Fohhn** may carry out service and/or repairs.

Do not service or repair the appliance.

For the address of a **Fohhn** service center near you, please contact the address given on the previous page.

Keep the packaging of the devices so that you can send them in their original packaging in the event of damage. This minimizes the risk of transport damage.

Waste disposal

Please note that this product must not be disposed of with household waste, but must be taken to a disposal point for electrical/electronic waste. Please observe all applicable national and local regulations. For more information, please contact your local authority, the waste transfer station responsible for you or your local sales partner.

CE marking

We hereby confirm that this product complies with the currently valid standards of the EMVG law and that the CE mark shown here is therefore affixed to the product.



Contact address

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