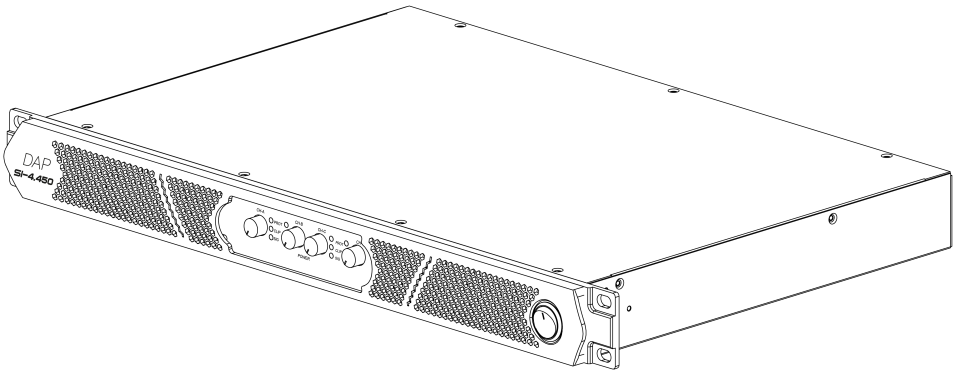
DAP

USER MANUAL

ENGLISH

V1.0



SI-4.450

Product code: D4243

4-channel 450 W amplifier

Preface

Thank you for purchasing this DAP product.

The purpose of this user manual is to provide instructions for the correct and safe use of this product.

Keep the user manual for future reference as it is an integral part of the product. The user manual shall be stored at an easily accessible location.

This user manual contains information concerning:

- Safety instructions
- Intended and non-intended use of the device
- Installation and operation of the device
- Maintenance procedures
- Troubleshooting
- Transport, storage and disposal of the device

Non-observance of the instructions in this user manual may result in serious injuries and damage of property.

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Design and product specifications are subject to change without prior notice.

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Highlite International B.V. – Vestastraat 2 – 6468 EX Kerkrade – the Netherlands

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1. Introduction

1.1. Before Using the Product

Important
Read and follow the instructions in this user manual before installing, operating or servicing this product.

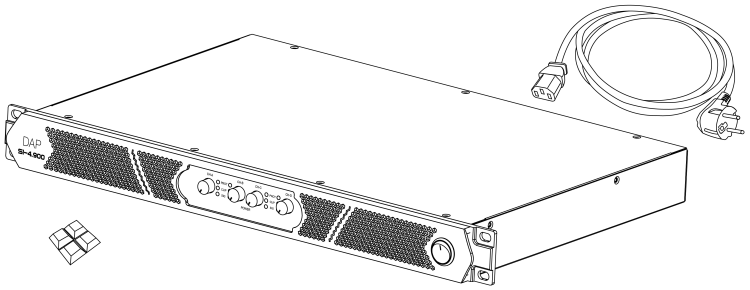
The manufacturer will not accept liability for any resulting damages caused by the non-observance of this manual.

After unpacking, check the contents of the box. If any parts are missing or damaged, contact your Highlite International dealer.

Your shipment includes:

- DAP SI-4.450
- Schuko to IEC power cable (1,5 m)
- 4x adhesive rubber feet
- User manual

Figure 1



1.2. Intended Use

This device is intended for professional use as an amplifier. It can be installed only indoors. This device is not suitable for households.

Any other use, not mentioned under intended use, is regarded as non-intended and incorrect use.

1.3. Text Conventions

Throughout the user manual the following text conventions are used:

- References: References to parts of the device are in bold lettering, for example: "turn the **adjustment handle (05)**". References to chapters are hyperlinked
- 0–255: Defines a range of values
- Notes: **Note:** (in bold lettering) is followed by useful information or tips

1.4. Symbols and Signal Words

Safety notes and warnings are indicated throughout the user manual by safety signs.

Always follow the instructions provided in this user manual.



DANGER Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury.



WARNING Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.



CAUTION Indicates a potentially hazardous situation, which, if not avoided, may result in minor or moderate injury.



Attention Indicates important information for the correct operation and use of the product.



Important Read and observe the instructions in this document.



Electrical hazard



Provides important information about the disposal of this product.

1.5. Symbols on the Information Label

This product is provided with an information label. The information label is located on the side of the device.

The information label contains the following symbols:



This device is designed for indoor use.



This device shall not be treated as household waste.



This device falls under IEC protection class I.

2. Safety



Important
Read and follow the instructions in this user manual before installing, operating or servicing this product.

The manufacturer will not accept liability for any resulting damages caused by the non-observance of this manual.

2.1. Warnings and Safety Instructions



DANGER
Danger for children

For adult use only. The device must be installed beyond the reach of children.

- Do not leave any parts of the packaging (plastic bags, polystyrene foam, nails, etc.) within the reach of children. Packaging material is a potential source of danger for children.



DANGER
Electric shock caused by dangerous voltage inside

There are areas inside the device where dangerous touch voltage may be present.

- Do not open the device or remove any covers.
- Do not operate the device if the covers or the housing are open. Before operation, check if the housing is firmly closed and all screws are tightly fastened.
- Disconnect the device from the electrical power supply before service and maintenance, and when the device is not in use.



DANGER
Electric shock caused by short-circuit

This device falls under IEC protection Class I.

- Make sure that the device is electrically connected to ground (earth). Connect the device only to a socket-outlet with a ground (earth) connection.
- Do not cover the ground (earth) connection.
- Do not bypass the thermostatic switch or fuses.
- Do not let the power cable come into contact with other cables. Handle the power cable and all connections with the mains with caution.
- Do not modify, bend, mechanically strain, put pressure on, pull or heat up the power cable.
- Make sure that the power cable is not crimped or damaged. Examine the power cable periodically for any defects.
- Do not immerse the device in water or other liquids. Do not install the device in a location where flooding may occur.
- Do not use the device during thunderstorms. Disconnect the device from the electrical power supply immediately.

Attention
Power supply

- Before connecting the device to the power supply, make sure that the current, voltage and frequency match the input voltage, current and frequency specified on the information label on the device.
- Make sure that the cross-sectional area of the extension cords and power cables is sufficient for the required power consumption of the device.

Attention
General safety

- Do not block the ventilation openings. Without proper heat dissipation and air circulation, the internal components may overheat. This can result in product damage.
- Do not shake the device. Avoid brute force when installing or operating the device.
- If the device is dropped or struck, disconnect the device from the electrical power supply immediately.
- If the device is exposed to extreme temperature variations (e.g. after transportation), do not switch it on immediately. Let the device reach room temperature before switching it on, otherwise it may be damaged by the formed condensation.
- If the device fails to work properly, discontinue use immediately.

Attention
For professional use only
This device must be used only for the purposes it is designed for.

This device is designed to be used as an amplifier. Any incorrect use may lead to hazardous situations and result in injuries and material damage.

- This device is not suitable for households.
- This device does not contain user-serviceable parts. Unauthorized modifications to the device will render the warranty void. Such modifications may result in injuries and material damage.

Attention
Before each use, examine the device visually for any defects.

Make sure that:

- All screws used for installing the device or parts of the device are tightly fastened and are not corroded.
- There are no deformations on housings, fixings and installation points.
- The power cables are not damaged and do not show any material fatigue.

Attention
Do not expose the device to conditions that exceed the rated IP class conditions.

This device is IP20 rated. IP (Ingress Protection) 20 class provides protection against solid objects greater than 12 mm, such as fingers, and no protection against harmful ingress of water.

2.2. Requirements for the User

This product may be used by ordinary persons. Maintenance may be carried out by ordinary persons. Installation and service shall be carried out only by instructed or skilled persons. Contact your Highlite International dealer for more information.

Instructed persons have been instructed and trained by a skilled person, or are supervised by a skilled person, for specific tasks and work activities associated with the installation, service and maintenance of this product, so that they can identify risks and take precautions to avoid them.

Skilled persons have training or experience, which enables them to recognize risks and avoid hazards associated with the installation, service and maintenance of this product.

Ordinary persons are all persons other than instructed persons and skilled persons. Ordinary persons include not only users of the product but also any other persons that may have access to the device or who may be in the vicinity of the device.

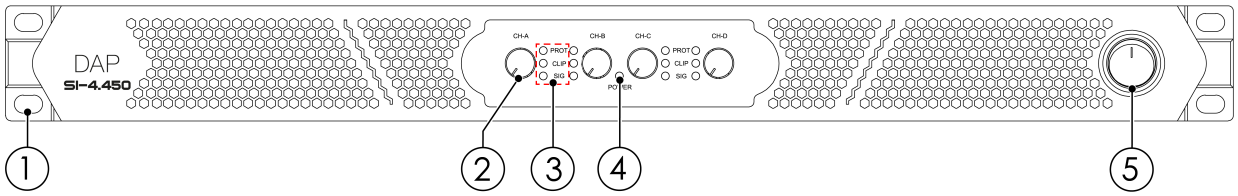
3. Description of the Device

The DAP SI-4.450 is a 4-channel power amplifier for fixed installations. It delivers 4 x 450 W into 4 Ω. It is capable of driving 2 Ω loads and can be bridged for more power.

The device has a clip limiter and DC output protection to prevent damage to the loudspeaker. Signal, Clip, Fault and Power LEDs indicate the status of the amplifier. The output level can be adjusted for each channel using the volume controls. Gain can be set on the rear panel for 0,775 V input or 32 dB gain. A mode switch selects stereo, mono and bridge modes.

3.1. Front View

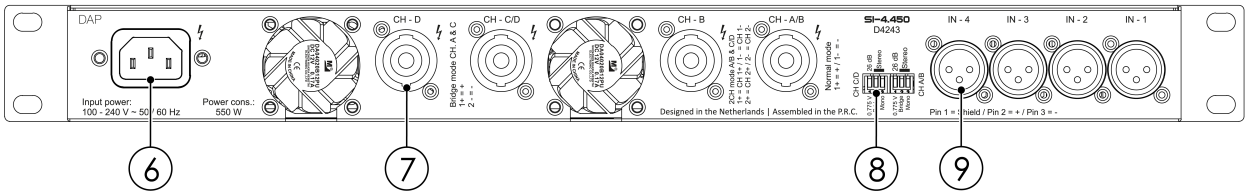
Figure 2



01) 4 x mounting openings (for installation in a 19-inch rack)
02) 4 x volume control knob
03) 4 x status LED indicators (see 6.4. LED Statuses on page 15)
04) Power LED indicator
05) Power switch

3.2. Back View

Figure 3



06) IEC power connector IN
07) 4 x speaker connectors OUT
08) 2 x mode selector
09) 4 x 3-pin XLR connectors IN

3.3. Product Specifications

Model:	SI-4.450

Inputs:	
Mono inputs	4
Mono input connector	3-pin XLR
Mono input impedance	20.000 Ω
Balanced mono input sensitivity	32 dBu

Outputs:	
2 ohms stable	Yes
Output per channel into 8 ohms at 1 kHz	300 W
Output per channel into 4 ohms at 1 kHz	450 W
Output per channel into 2 ohms at 1 kHz	675 W
Bridge output into 8 ohms at 1 kHz	900 W
Bridge output into 4 ohms at 1 kHz	1350 W
Output channels	4
Output mode	4-channel / Bridge / Mono / Parallel / Stereo
Output connector	Speaker Connector 4 pole

Audio specifications:	
THD level	< 0,05 %
Signal-to-noise ratio	> 100 dB
Slew rate	50 V/µs
Amp technology	Class D
Damping factor	1000 :1
Crosstalk	75 dBu
Frequency response minimum	20 Hz
Frequency response maximum	20000 Hz

Electrical specifications and connections:	
Power supply	100–240 V AC 50/60 Hz
SMPS	Yes
Power consumption	550 W
Power connector in	IEC

Mechanical specifications:	
Height	45 mm
Width	483 mm
Length	296 mm
Installation depth (excl. connector)	296 mm
Flightcase size	19"
Rack units	1 U
Housing	Steel
Color	Black
Finish	Powder coating
Weight	5,2 kg

IP rating	IP20 (indoor use only)

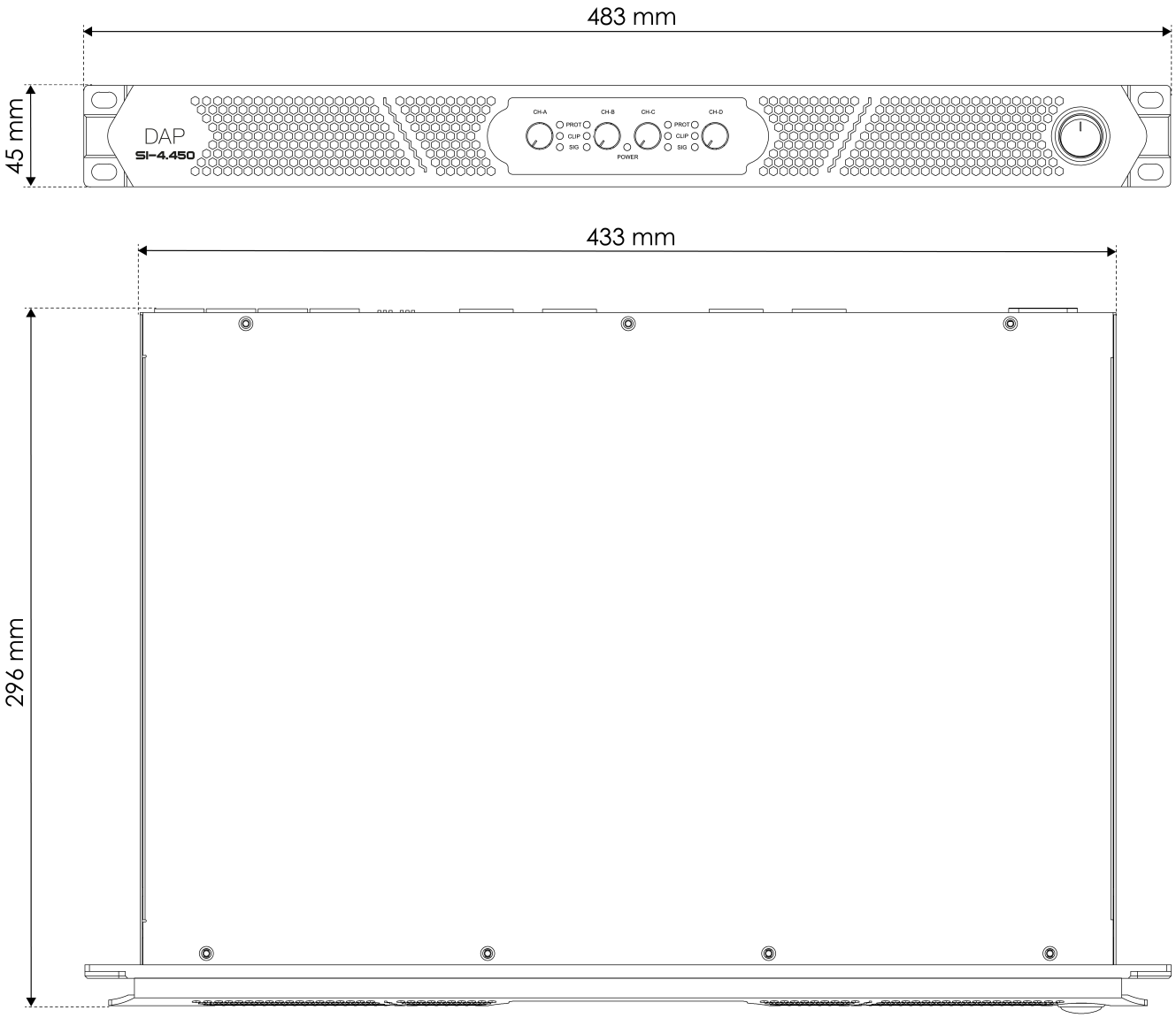
Product properties:	
Electronic protection	Clip limiter / DC voltage / Overheat / Overload / Under voltage
LED indicators	Clip / Power / Protect / Signal

Thermal Specifications:	
Maximum Ambient Temperature	40 °C
Minimum Ambient Temperature	-15 °C
Maximum Surface Temperature	70 °C

Included Items:	
Included Cables	IEC cable
Included Accessories	Rubber feet

3.4. Dimensions

Figure 4



4. Installation

4.1. Safety Instructions for Installation



Attention
Make sure that there is enough space for ventilation around the device.

- Do not block the ventilation openings. Without proper heat dissipation and air circulation, the internal components may overheat. This can result in product damage.
- Do not install near equipment that produces heat, for example amplifiers.

4.2. Installation Site Requirements

- The device can be used only indoors.
- The minimum distance to other objects must be bigger than 0,5 m.
- The maximum ambient temperature t_a = 40 °C must never be exceeded.
- The relative humidity must not exceed 50 % with an ambient temperature of 40 °C.

4.3. Rack Mounting

The device can be placed on a stable, flat surface using the adhesive feet, or mounted in a standard 19-inch rack. The device requires 1 rack unit (RU) of space.

Make sure that the rack is sufficiently secured to prevent it from becoming unstable or falling over.

To mount the device in a two-post rack, follow the steps below:

01) Insert 4 cage nuts in the openings on the rack posts where you want to mount the device.
02) Position the device in front of the rack posts so that the 4 **mounting openings (01)** on the flanges face the openings on the rack posts with cage nuts.
03) Use a screwdriver to mount the device to the rack posts with 4 screws.

4.4. Connecting to Power Supply



DANGER
Electric shock caused by short-circuit

The device accepts AC mains power at 100–240 V and 50/60 Hz. Do not supply power at any other voltage or frequency to the device.

This device falls under IEC protection class I. Make sure that the device is always electrically connected to the ground (earth).

Before connecting the device to the socket-outlet:
- Make sure that the power supply matches the input voltage specified on the information label on the device.
- Make sure that the socket-outlet has a ground (earth) connection.

Connect the device to the socket-outlet with the power plug. Do not connect the device to a dimmer circuit, as this may damage the device.

5. Setup

The SI-4.450 can be set up in stereo mode, mono mode or bridge mode to change how the inputs are connected to the outputs. The mode can be changed with the **mode selector (08)** (see 6.3. Changing the Mode on page 14).

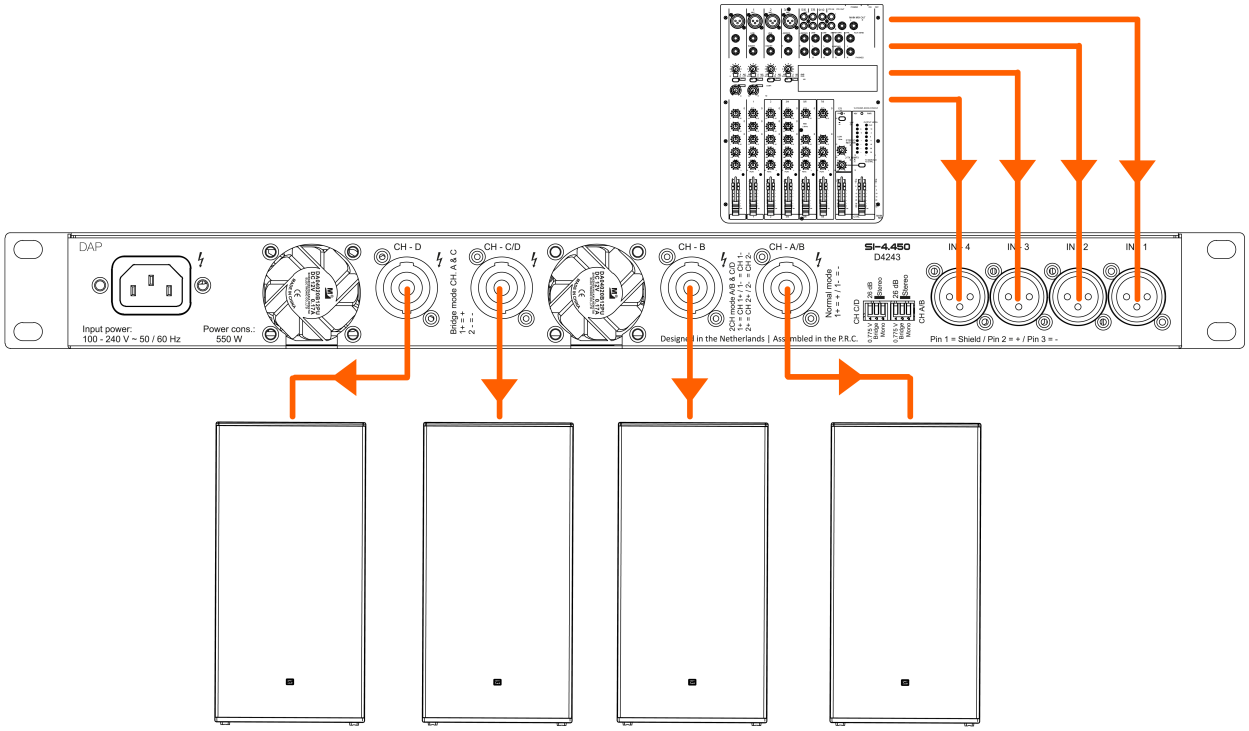
5.1. Setup in Stereo Mode

You can set up the SI-4.450 in stereo mode to connect 4 inputs to 4 outputs.

To complete the setup, follow the steps below:

01) Make sure that all devices are switched off.
02) Connect the input devices to the **3-pin XLR connectors IN (09)**.
03) Connect the **speaker connectors OUT (07)** to the speakers.
04) Switch on all devices.
05) Adjust the mode with the **mode selector (08)** (see 6.3. Changing the Mode on page 14).

Figure 5



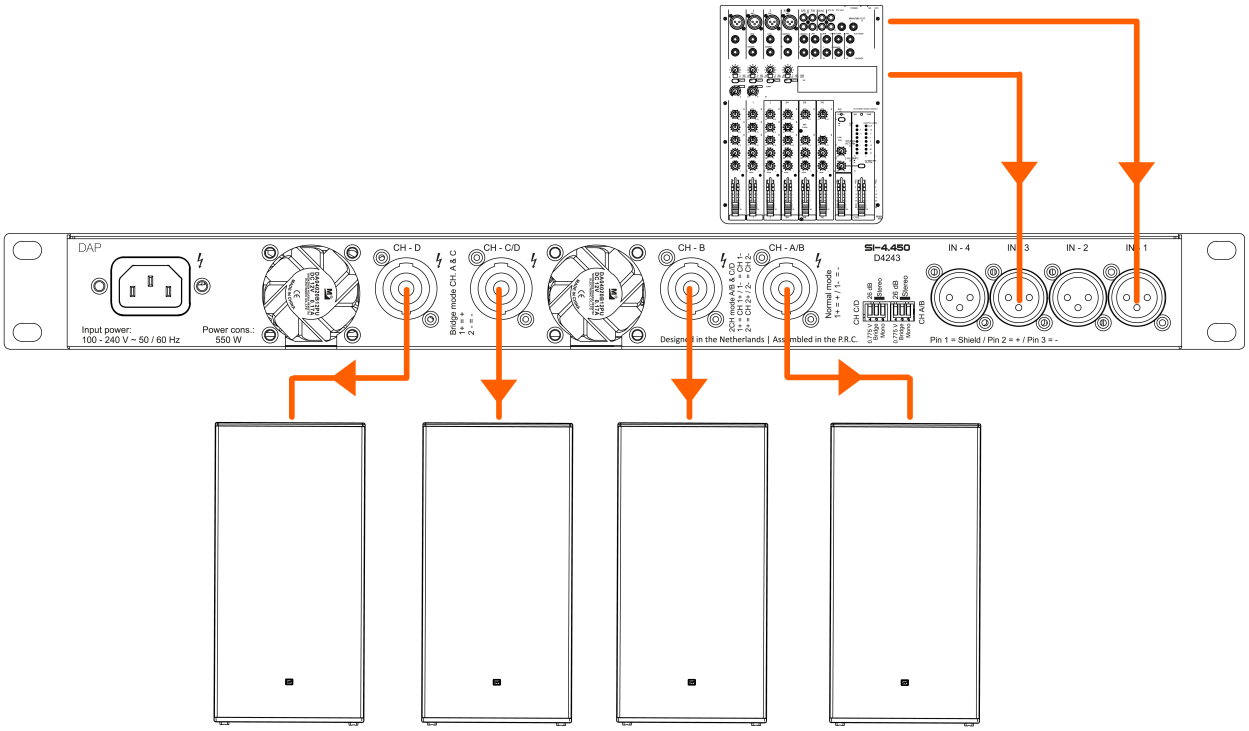
5.2. Setup in Mono Mode

You can set up the SI-4.450 in mono mode to connect 2 inputs to 4 outputs.

To complete the setup, follow the steps below:

01) Make sure that all devices are switched off.
02) Connect the input devices to the 1st and 3rd **3-pin XLR connectors IN (09)**.
03) Connect the **speaker connectors OUT (07)** of to the speakers.
04) Switch on all devices.
05) Adjust the mode with the **mode selector (08)** (see 6.3. Changing the Mode on page 14).

Figure 6



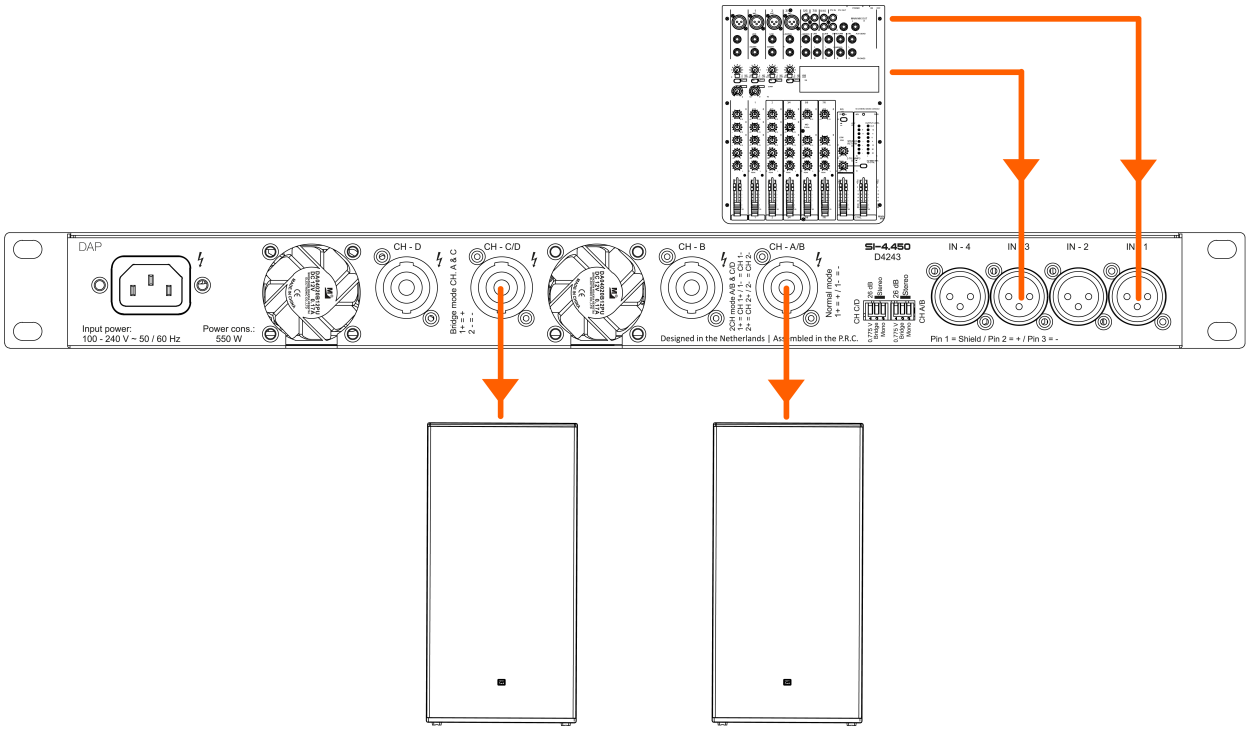
5.3. Setup in Bridge Mode

You can set up the SI-4.450 in bridge mode to combine 4 outputs to 2 outputs. You can bridge output A and B to output A/B and output C and D to output C/D.

To complete the setup, follow the steps below:

01) Make sure that all devices are switched off.
02) Connect the input devices to the 1st and 3rd **3-pin XLR connectors IN (09)**.
03) Connect the A/B and C/D **speaker connectors OUT (07)** to the speakers.
04) Switch on all devices.
05) Adjust the mode with the **mode selector (08)** (see 6.3. Changing the Mode on page 14).

Figure 7



6. Operation

6.1. Safety Instructions for Operation

Attention
This device must be used only for the purposes it is designed for.

This device is intended for professional use as an amplifier. It can be used only indoors. This device is not suitable for households.

Any other use, not mentioned under intended use, is regarded as non-intended and incorrect use.

Attention
Power supply

Before connecting the device to the power supply, make sure that the current, voltage and frequency match the input voltage, current and frequency specified on the information label on the device.

6.2. Switching On and Off

The device has a power switch.

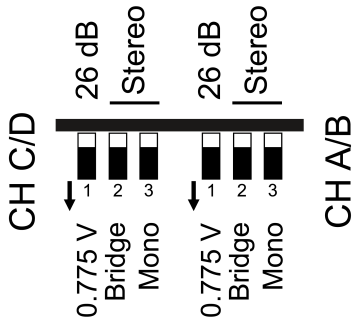
- To switch the device on, press the **power switch (05)** in ON position.
- To switch the device off, press the **power switch (05)** in OFF position.

6.3. Changing the Mode

The SI-4.450 has 2 **mode selectors (08)**, 1 for channel A/B and 1 for channel C/D.

With the **mode selector (08)** you can change the mode of the SI-4.450 as follows:

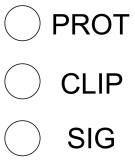
Figure 8



- Gain: Use switch 1 to set the amplifier gain to 32 dB or the amplifier sensitivity to 0,775 V
- Stereo mode: Set switch 2 and 3 to Stereo to activate stereo mode (see 5.1. Setup in Stereo Mode on page 11)
- Mono mode: Set switch 2 to Stereo and switch 3 to Mono to activate mono mode (see 5.2. Setup in Mono Mode on page 12)
- Bridge mode: Set switch 2 to Bridge and switch 3 to Stereo to activate bridge mode (see 5.3. Setup in Bridge Mode on page 13)

6.4. LED Statuses

The device has 3 **status LED indicators (03)** for each output channel. The LED indicators have the following statuses:



PROT: Illuminates red when the amp is overloaded

CLIP: Illuminates yellow when the output signal is distorted by more than 1 %

SIG: Illuminates green when the input signal is greater than -32 dB

7. Troubleshooting

This troubleshooting guide contains solutions to problems which can be carried out by an ordinary person. The device does not contain user-serviceable parts.

Unauthorized modifications to the device will render the warranty void. Such modifications may result in injuries and material damage.

Refer servicing to instructed or skilled persons. Contact your Highlite International dealer in case the solution is not described in the table.

Problem	Probable cause(s)	Solution
The device does not function at all	No power to the device	• Make sure that the device is connected to the power supply and switched on
	Internal fuse is blown	• Contact your Highlite International dealer
No sound	The volume is set to minimum	• Increase the volume

8. Maintenance

8.1. Safety Instructions for Maintenance



DANGER
Electric shock caused by dangerous voltage inside

Disconnect power supply before servicing or cleaning.

8.2. Preventive Maintenance



Attention
Before use, examine the device visually for any defects.

Make sure that:

- The housing is not damaged.
- The power cable is not damaged and does not show any material fatigue.

8.2.1. Basic Cleaning Instructions

To clean the device, follow the steps below:

01) Disconnect the device from the electrical power supply.
02) Allow the device to cool down for at least 5 minutes.
03) Clean the device with a soft, lint-free cloth.



Attention

- Do not immerse the device in liquid.
- Do not use alcohol or solvents.

8.3. Corrective Maintenance

The device does not contain user-serviceable parts. Do not open the device and do not modify the device.

Refer repairs and servicing to instructed or skilled persons. Contact your Highlite International dealer for more information.

9. Deinstallation, Transportation and Storage

9.1. Instructions for Deinstallation

WARNING
Incorrect deinstallation can cause serious injuries and damage of property.

- Let the device cool down before dismounting.
- Disconnect power supply before deinstallation.
- Always observe the national and site-specific regulations during deinstallation and derigging of the device.
- Wear personal protective equipment in compliance with the national and site-specific regulations.

9.2. Instructions for Transportation

- Use the original packaging to transport the device, if possible.
- Always observe the handling instructions printed on the outer carton box, for example: "Handle with care", "This side up", "Fragile".

9.3. Storage

- Clean the device before storing (see 8.2. Preventive Maintenance on page 17).
- Store the device in the original packaging, if possible.

10. Disposal

Correct disposal of this product

Waste Electrical and Electronic Equipment

This symbol on the product, its packaging or documents indicates that the product shall not be treated as household waste. Dispose of this product by handing it to the respective collection point for recycling of electrical and electronic equipment. This is to avoid environmental damage or personal injury due to uncontrolled waste disposal. For more detailed information about recycling of this product contact the local authorities or the authorized dealer.

11. Approval

Check the respective product page on the website of Highlite International (www.highlite.com) for an available declaration of conformity.

DAP