Operation Manual

19" DSP Power Amplifiers with 2 to 8 channels and integrated 8 × 8 DSP Matrix

paseries

pure listening

Operation Manual

19" DSP Power Amplifiers with 2 to 8 channels and integrated 8×8 DSP Matrix

The PA DSC Series amplifiers are sophisticated Class-D multi-channel power amplifiers with an integrated 8×8 DSP matrix and two sockets for different input modules. The three different models in this series are equipped with symmetrical line inputs, asymmetrical cinch inputs or an 8-channel DANTE module, and can be expanded by adding a second input module. By combining two input modules, the power amplifiers can be operated as central amplifier units with a mix of analog and digital signal sources. Ground Lift switch for each input channel pair plus DIP switches for modifying input sensitivity on each channel enable the amplifiers to be easily adjusted to different signal sources. The circuit design is designed to ensure outstanding sound quality and safety levels with minimum heat build-up. The generously proportioned, high-capacity mains adapter together with our new processor-controlled class-D power amplifier modules guarantee outstanding efficiency levels and enormous power reserves. The automatic ON/OFF function (switchable for each channel) automatically switches inactive amplifier channels to an energy-saving SLEEP mode.

The nominal output power of the amplifiers is available at 2 to 8 Ohms (4 to 16 Ohms in bridge mode), and for the 800 Watts versions at 2 to 4 Ohms (4-8 Ohms in bridge mode). One or more power amplifiers in the PA DSC Series can be connected via Ethernet, programmed using our LB AUDIO CONTROL App, and operated via a media control system. In addition to the 8×8 mixer matrix, the DSP offers ten fully parametric filters, delays, compressors and limiters for each input and output.

We are happy to create project-related presets upon request. The amplifiers are designed for remote control with a switching contact for ON/OFF and channel-separated VCA equipped with inputs for external volume control.

LB AUDIO CONTROL

Browser-based App
for our DSPs
Interface: Ethernet
Windows + Mac OS

paseries

Content

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PA 4800 DSC

PA 6800 DSC

PA 8800 DSC

Detailed technical information can be found in the product-specific data sheets and on our website: https://www.lb-lautsprecher.de/en/Amplifiers

Important Safety Information

Please read the following information and these instructions carefully before installation and be sure to follow them!

Components inside the device may contain high voltages which, if touched, can result in life-threatening electric shocks.

CAUTION!
Service and repair work must only be carried out by qualified personnel. Do not open the case as there is a risk of electric shock. There are no controls or components inside the device that require you to open the case. If the case has to be opened by qualified personnel, make sure that the device is completely disconnected from the power supply.

THIS UNIT MUST
BE EARTHED!

The connection to the mains supply is made using the included power cable. A damaged connection cable may not be repaired. The device must be grounded! Never insulate the protective contact of the power plug.

The mains fuse is located inside the device. The mains fuse may only be replaced with a replacement fuse of the same value. Under no circumstances should you bypass the mains fuse or replace it with a higher value.

The operating voltage must match the local power supply.

The device should be shielded from moisture and wet conditions. It must not be operated in rain or close to water, baths, washbasins, sinks, swimming pools or in damp environments. Do not place any objects filled with water such as vases, glasses or bottles on the device.

Avoid direct sunlight and do not install it in the direct vicinity of radiators or other heat sources. Upon sudden change of climatic conditions (e. g. transfer from a cold place to a warm room) water may condense inside the device, which may lead to malfunction or damage. Before switch-on wait until the amplifiers have reached room temperature.

Unplug the mains plug to protect the device during a thunderstorm or if it is going to be left unsupervised or unused for a longer period of time. This prevents the device being damaged by lightning strikes or voltage surges in the mains grid. Do not touch the case when the device is in use as it may heat up during operation. Make sure that the device is ventilated sufficiently.

Improper use will invalidate the warranty!

Disclaimer
LB is not liable for damage to speakers or other equipment caused by negligence or in cases where the product has been used for something other than its intended purpose. In particular, LB is not liable for lost earnings or other financial losses incurred by the purchaser. This limitation also applies to the personal liability of employees, representatives and agents.

These products meet the requirements of European Directive 2002/96/EC (WEEE) and 2002/95/EC (RoHS).

Inputs	8 × Line In sym./ 8 × Line In Cinch asym./Dante (depending on the model variant)
Nom. input/output level	+4/-6 dBU, switchable
Max. input /output level	+22 dBU
Input impedance	20 kOhms
Load impedance	≥ 2 Ohms / Bridge ≥ 4 Ohms
Frequency range	20 Hz – 20 kHz (-3 dB)
THD	< 0,05 % (1 kHz, 3 dB below full power)
Dynamic range	>100 dB
Display	OLED-Display, LEDs for Sleep, Signal, Limit, Protect per Kanal, LEDs for Stand By / Power, DSP Signal, Limit, Clip
Controls	Encoder for preset change and display of settings, mains connector, DIP switch for input sensitivity +4/-6 dB and auto ON/OFF per channel, DIP switch for ground lift on the input modules (internal)
Additional connectors	VCA inputs for each channel 0 – 10 V (0 V = Nom. Gain, 10 V = Mute), Remote ON/OFF contact (The contact must be closed with the provided short-circuiting bridge or a potential-free external switch to activate the amplifier); Potential-free FAULT contact N/O
DSP	24 Bit, 48 kHz
Latency	1,4 ms
Functions	8×8 mixer matrix, 10 parametric filters for each input/output, Filter types: Bell, High Shelf, Low Shelf, High Pass, Low Pass (6dB/12dB), Notch, Delay up to 100 ms per channel, limiter and compressor for each input/output, 40 Presets
	LB AUDIO CONTROL Professional control app for system controllers and DSP power amplifiers Operating Systems: Windows, Mac OS **Download from our Website – www.lb-lautsprecher.de/Download-Software**
Interface	Ethernet
Cooling	Regulated fans, air flow from front to back
Protective circuits	Protection against short circuit and overtemperature, inrush current limitation; Each speaker output: peak limiter, current limiter and power limiter
Power supply	230 V AC 50 Hz
Mains connector	IEC connector
Dimensions (W × H × D)	19", 1 U: 483 × 44 × 348 mm, 19", 2 U: 483 × 88 × 348 mm (PA 6400 DSC – 8800 DSC)
Warranty	5 years

Technical Data – model dependent

Model	Chassis	Outputs	Output Power		Power consumption (Watts)						Weight
					Standby	All Channels SLEEP	All Channels Active	$1/8$ Nominal power	Max. avarage consumption	Peak power	
PA 2100 DSC	1 U	2 × Speaker Out (up to 2 × 4 mm²) 6 × Line Out sym. System terminals, switchable	4 Ohms 8 Ohms 2 Ohms Bridge	2 × 100 Watts 2 × 100 Watts 2 × 100 Watts 1 × 200 Watts (4 – 16 Ohms)	<0,5	11	14	44	70	320	6.5 kg
PA 4100 DSC	1 U	4 × Speaker Out (up to 2 × 4 mm²) 4 × Line Out sym. System terminals, switchable	4 Ohms 8 Ohms 2 Ohms Bridge	4 × 100 Watts 4 × 100 Watts 4 × 100 Watts 2 × 200 Watts (4 – 16 Ohms)	<0,5	14	19	78	130	630	7.0 kg
PA 6100 DSC	1 U	6 × Speaker Out (up to 2 × 4 mm²) 2 × Line Out sym. System terminals, switchable	4 Ohms 8 Ohms 2 Ohms Bridge	6 × 100 Watts 6 × 100 Watts 6 × 100 Watts 3 × 200 Watts (4 – 16 Ohms)	<0,5	18	25	113	180	930	8.8 kg
PA 8100 DSC	1 U	8 × Speaker Out (up to 2 × 4 mm²) System terminals, switchable	4 Ohms 8 Ohms 2 Ohms Bridge	8 × 100 Watts 8 × 100 Watts 8 × 100 Watts 4 × 200 Watts (4 – 16 Ohms)	<0,5	21	30	147	240	1240	9 kg
PA 2200 DSC	1 HE	2 × Speaker Out (up to 2 × 4 mm²) 6 × Line Out sym. System terminals, switchable	4 Ohms 8 Ohms 2 Ohms Bridge	2 × 200 Watts 2 × 200 Watts 2 × 200 Watts 1 × 400 Watts (4 – 16 Ohms)	<0,5	13	19	78	130	630	8 kg
PA 4200 DSC	1 U	4 × Speaker Out (up to 2 × 4 mm²) 4 × Line Out sym. System terminals, switchable	4 Ohms 8 Ohms 2 Ohms Bridge	4 × 200 Watts 4 × 200 Watts 4 × 200 Watts 2 × 400 Watts (4 – 16 Ohms)	<0,5	16	25	143	230	1230	8.5 kg
PA 6200 DSC	1 U	6 × Speaker Out (up to 2 × 4 mm²) 2 × Line Out sym. System terminals, switchable	4 Ohms 8 Ohms 2 Ohms Bridge	6 × 200 Watts 6 × 200 Watts 6 × 200 Watts 3 × 400 Watts (4 – 16 Ohms)	<0,5	20	32	208	340	1840	9.5 kg
PA 8200 DSC	1 U	8 × Speaker Out (up to 2 × 4 mm²) System terminals, switchable	4 Ohms 8 Ohms 2 Ohms Bridge	8 × 200 Watts 8 × 200 Watts 8 × 200 Watts 4 × 400 Watts (4 – 16 Ohms)	<0,5	23	38	273	450	2450	9 kg
PA 2400 DSC	1 U	2 × Speaker Out (up to 2 × 4 mm²) 6 × Line Out sym. System terminals, switchable	4 Ohms 8 Ohms 2 Ohms Bridge	2 × 400 Watts 2 × 400 Watts 2 × 400 Watts 1 × 800 Watts (4 – 16 Ohms)	<0,5	16	27	145	240	1250	8.5 kg
PA 4400 DSC	1 U	4 × Speaker Out (up to 2 × 4 mm²) 4 × Line Out sym. System terminals, switchable	4 Ohms 8 Ohms 2 Ohms Bridge	4 × 400 Watts 4 × 400 Watts 4 × 400 Watts 2 × 800 Watts (4 – 16 Ohms)	<0,5	19	35	271	440	2440	10 kg
PA 6400 DSC	2 U	6 × Speaker Out (up to 2 × 4 mm²) 2 × Line Out sym. System terminals, switchable	4 Ohms 8 Ohms 2 Ohms Bridge	6 × 400 Watts 6 × 400 Watts 6 × 400 Watts 3 × 800 Watts (4 – 16 Ohms)	<0,5	23	44	397	650	3650	14 kg
PA 8400 DSC	2 U	8 × Speaker Out (up to 2 × 4 mm²) System terminals, switchable	4 Ohms 8 Ohms 2 Ohms Bridge	8 × 400 Watts 8 × 400 Watts 8 × 400 Watts 4 × 800 Watts (4 – 16 Ohms)	<0,5	26	52	522	860	4860	15 kg
PA 2800 DSC	2 U	2 × Speaker Out (bis 2 × 4 mm²) 6 x Line Output sym. System terminals, switchable	2 Ohms 4 Ohms 8 Ohms Bridge	2 × 800 Watts 2 × 800 Watts 2 × 400 Watts 1 × 1600 Watts (4 - 8 Ohms)	<0,5	9	50	262	370	2440	9.3 kg
PA 4800 DSC	2 U	4 × Speaker Out (up to 2 × 4 mm²) 4 × Line Out sym. System terminals, switchable	2 Ohms 4 Ohms 8 Ohms Bridge	4 × 800 Watts 4 × 800 Watts 4 × 400 Watts 2 × 1600 Watts (4 - 8 Ohms)	<0,5	19	95	526	740	4860	14.6 kg
PA 6800 DSC	2 U	6 × Speaker Out (up to 2 × 4 mm²) 2 × Line Out sym. System terminals, switchable	2 Ohms 4 Ohms 8 Ohms Bridge	6 × 800 Watts 6 × 800 Watts 6 × 400 Watts 3 × 1600 Watts (4 - 8 Ohms)	<0,5	23	134	779	1090	7280	18.4 kg
PA 8800 DSC	2 U	8 × Speaker Out (up to 2 × 4 mm²) System terminals, switchable	2 Ohms 4 Ohms 8 Ohms Bridge	8 × 800 Watts 8 × 800 Watts 8 × 400 Watts 4 × 1600 Watts (4 - 8 Ohms)	<0,5	26	172	1033	1450	9700	18.8 kg

Display Front

1   Power switch
The amplifier switches on with a delay of approx. 10 seconds.

2   LED STANDBY/ON
The LED lights up red in STANDBY and green when
the amplifier is switched on.

3   LED DSP SIGNAL / LIMIT / CLIP
Shows the operating status of the DSP:
Green when signal is present.
Yellow if one of the set limiters is active.
Red if the DSP is overdriven on the input or output side.

4   USB port
Interface as backup for firmware update

5   Display
The name of the amplifier is shown in the display and
can be changed in the LB AUDIO CONTROL Software.
The currently selected preset is displayed in the bottom line.

6   PRESET SELECT
The encoder can be used to choose the presets stored in the
device. The MAC address and the current IP address can also
be displayed.

7   LED Display
SLEEP – the corresponding power amplifier channel is
temporarily switched off.
SIGNAL – There is a signal at the output of the corresponding
power amplifier channel.
LIMIT – the corresponding power amplifier channel is limited.
(Peak-Voltage, Peak Current, Peak Power or Average Power)
FAULT – the corresponding power amplifier channel witches off:
short circuit at the output, overtemperature or defect. A flashing
LED indicates that the channel power is being reduced due to
the operating temperature being too high.

Cleaning the ventilation filters

Switch off the power amplifier, disconnect it from the power and remove the front panel to clean the filter foam.

1   Loosen the two fastening screws (1) with a hexagon socket
wrench and remove the front panel including the filter foam.

2   Wash out and dry the filter foam mat.

3   Reinstall the front panel with the filter foam mat.

Caution!
**The power amplifiers should generally not be run without
filter foam.**

**Do not blow out the front panel with compressed air.
This could damage the fan bearings.**
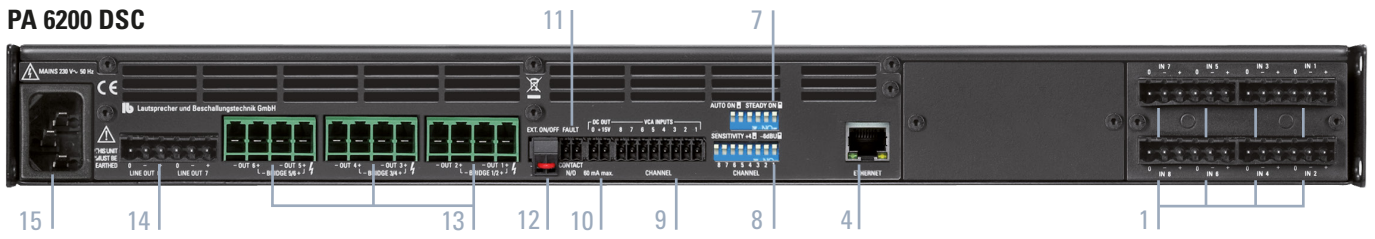
**PA 6200 DSC**

PA 6200 DSC CINCH
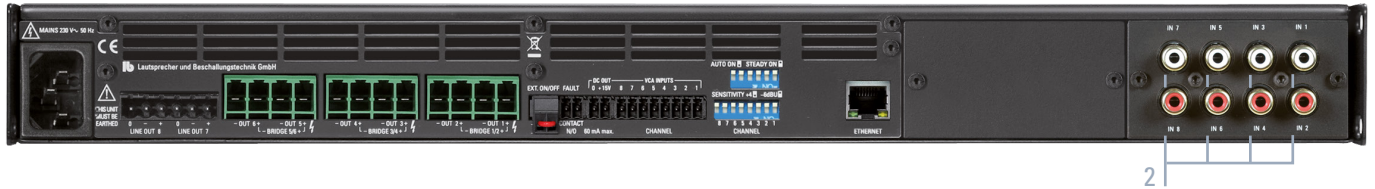
PA 6200 DSC DANTE
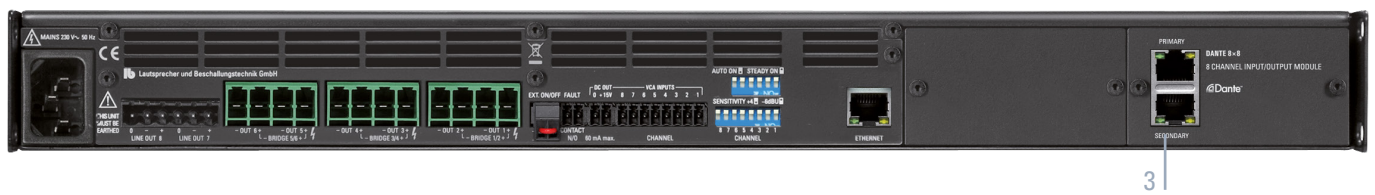
1 8×IN-SYM – Input module 8 × Line In symmetrical. The inputs are provided with pluggable system terminals. There are DIP switches (inside) on the module's circuit board with which the channels can be grounded in pairs. When operating with grounded signal sources, the DIP switches should not be switched on (LIFT) to avoid ground loops (Ground Lift).

2 8×IN-CINCH – Input module 8 × Line In Cinch asymmetrical. There are DIP switches (inside) on the module's circuit board with which the channels can be grounded in pairs. When operating with grounded signal sources, the DIP switches should not be switched on (LIFT) to avoid ground loops (Ground Lift).

DIP switches on the inside of the modules **8×IN-SYM / 8×IN-CINCH.**
Switch position up = GROUND (ON)
Switch position down = LIFT

3 DANTE 8×8 Dante-Interface – 2 × RJ 45 Ethernet.
The Dante module is equipped with two network sockets (Primary / Secondary). With the Dante Controller, all devices with a Dante interface that are integrated in the network can be routed. Download Audinate Website: https://www.audinate.com/support/dante-controller

4 ETHERNET – RJ 45 Network connection for programming and controling the DSP.

7 AUTO ON/STEADY ON – DIP switch per channel.
In the upper switch position, the corresponding channel runs in AUTO ON/OFF mode and switches to sleep mode (SLEEP) as soon as there is no music signal for more than 10 minutes (this significantly reduces power consumption). In the lower switch position, the channels are permanently active (STEADY ON).

8 SENSITIVITY – DIP switch +4/-6 dB per channel.
In the lower switch position the input sensitivity of the respective channel switches from +4 dBU (studio level) to –6 dBU for home audio and PC applications.

9 VCA-INPUTS – (Voltage Controlled Amplifier) per channel.
Inputs for external volume control with our WP-V and RP-V volume controls, with the DV module (digital volume module) and Up/Down contacts or with 0 – 10 V dimmer actuators (0 V = nominal gain, 10 V = -80 dB = mute). At 15 V, the respective power amplifier channel is set to SLEEP.

10 DC OUT 15 V
Power supply for our volume controls WP-V and RP-V or the DV module (60 mA max.)

11 FAULT CONTACT N/O
Potential-free contact, closes in the event of an error in one or more power amplifier channels. Contact load max. 1 A.

12 EXT. ON/OFF – N/C (Short circuit plug).
The EXT. ON/OFF contact must be closed so that the amplifier is active. This can be done using the factory-made short-circuit plug or using an external potential-free switch or contact. One or more PA-Series power amplifiers can be connected to a VAS (voice alarm system) via this contact. The VAS must provide a potential-free NO contact for this. As soon as a voice announcement is made, it opens and the power amplifiers are completely switched off. If the line to the VAS is interrupted, the power amplifiers also switch off. After the contact is closed again, the power amplifiers switch on again with a delay of approx. 10 seconds.

13 Speaker outputs
The loudspeaker outputs are equipped with pluggable green system terminals with a cable cross-section of up to 2 × 4 mm². The impedance of the speakers should not be significantly less than 2 ohms (4 ohms in bridge operation).

14 Line outputs
The symmetrical line outputs have black 3-pin system terminals.

15 IEC Connector (Power cord is included).
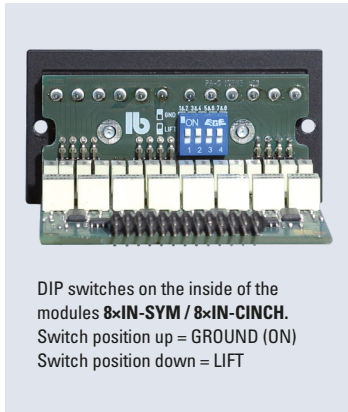
Input modules and Accessories
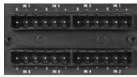
8×IN-SYM — 8-channel input module for PA Series / PA DSC Series with symmetrical line inputs. The inputs are equipped with pluggable screw terminals. The module has DIP switches for GROUND-LIFT per channel pair for operation with grounded signal sources (internal).

8×IN-CINCH — 8-channel input module for PA Series / PA DSC Series with asymmetrical line inputs. The inputs are equipped with cinch sockets. The module has DIP switches for GROUND-LIFT per channel pair for operation with grounded signal sources (internal).

DANTE 8×8 — 8-channel DANTE input module for PA Series / PA DSC Series. The DANTE interface has two RJ-45 sockets for Audio Over Ethernet (Primary/Secondary). When delivered, the network sockets are configured as switches and can be converted to redundant operation via Dante Controller.

Changing an input module is done via back side of the chassis and may only be carried out when the device is switched off.

Accessories

PA-T 100 — 100 V transformer module, 100 Watts, toroidal core

PA-T 200 — 100 V transformer module, 200 Watts, toroidal core

PA-T 400 — 100 V transformer module, 400 Watts, toroidal core

PA-T 800 — 100 V transformer module, 800 Watts, toroidal core

PA-T 1U — Rack Cradle 19", 1 U for 4 × PA-T 100, 2 × PA-T 200, 2 × PA-T 400

PA-T 2U — Rack Cradle 19", 2 U for 2 × PA-T 800

WP-V — Wall Panel (Volume control and ON/MUTE) and LED

RP-V — Rack Panel (Volume control and ON/MUTE) and LED

DV-Module — Digital volume control (UP/DOWN contacts)

RP 1U — 19" Rack mount, 1U, for 6 × RP panels

The block diagram shows an example of the PA 4200 DSC model with 4 loudspeaker outputs and 4 line outputs. A second input module can be retrofitted.

Input Slot A

8xIN-SYM
8 Channel sym. Input Module

INPUT 1 sym. +/O
INPUT 2 sym. +/O
GROUND 1/2
INPUT 3 sym. +/O
INPUT 4 sym. +/O
GROUND 3/4
INPUT 5 sym. +/O
INPUT 6 sym. +/O
GROUND 5/6
INPUT 7 sym. +/O
INPUT 8 sym. +/O
GROUND 7/8

DSP (Signal Processing)

Gain, Filters, Delay, Limiter, Compressor

Gain, Filters, Delay, Limiter, Compressor, Phase

Matrix 8 × 8

VCA 1
VCA 2
VCA 3
VCA 4
VCA 5
VCA 6
VCA 7
VCA 8

POWER OUT 1 200 WATTS
BRIDGE 1/2 400 WATTS
POWER OUT 2 200 WATTS
AUTO/STEADY ON Channel 1/2 (back)
POWER OUT 3 200 WATTS
BRIDGE 3/4 400 WATTS
POWER OUT 4 200 WATTS
AUTO/STEADY ON Channel 3/4 (back)
LINE OUT 5 sym.
LINE OUT 6 sym.
LINE OUT 7 sym.
LINE OUT 8 sym.

Optional Input Modules

8xIN-CINCH
8 Channel Cinch Input Module

INPUT 1 Cinch
INPUT 2 Cinch
GROUND 1/2
INPUT 3 Cinch
INPUT 4 Cinch
GROUND 3/4
INPUT 5 Cinch
INPUT 6 Cinch
GROUND 5/6
INPUT 7 Cinch
INPUT 8 Cinch
GROUND 7/8

DANTE 8x8
8-Channel Ethernet Audio Module

PRIMARY
ETHERNET   Switch
SECONDARY
DANTE Interface
8 Channel D/A

Input Slot B

POWER ON/OFF (front)
USB PORT (front)
DISPLAY/CONTROLS/LED INDICATORS (front)
ETHERNET PORT (back)

GAIN -6 / +4 dB Channel 1 – 8 (back)

VCA INPUTS

0 V	Nom. Gain
10 V	– ∞ (Mute)
15 V	Sleep

VCA 8
VCA 7
VCA 6
VCA 5
VCA 4
VCA 3
VCA 2
VCA 1

STAND BY CONTACT N/C

+15V / 0
DC OUT 60 mA max.

FAULT CONTACT N.O.

DC / AC

MAINS 230 VAC 50 Hz

The block diagram shows an example of the PA 6100 DSC CINCH model with 6 loudspeaker outputs and 2 line outputs.
A second input module can be retrofitted.

The block diagram shows an example of the PA 8400 DSC DANTE model with 8 loudspeaker outputs. A second input module can be retrofitted.

Input Slot A

DANTE 8x8
8-Channel Ethernet Audio Module

DSP (Signal Processing)

PRIMARY
ETHERNET   Switch
SECONDARY

DANTE Interface

8 Channel D/A

Gain, Filters, Delay, Limiter, Compressor

Gain, Filters, Delay, Limiter, Compressor, Phase

Matrix 8 × 8

VCA 1
VCA 2
VCA 3
VCA 4
VCA 5
VCA 6
VCA 7
VCA 8

POWER OUT 1
400 WATTS
BRIDGE 1/2
800 WATTS
POWER OUT 2
400 WATTS
AUTO/STEADY ON
Channel 1/2 (back)

POWER OUT 3
400 WATTS
BRIDGE 3/4
800 WATTS
POWER OUT 4
400 WATTS
AUTO/STEADY ON
Channel 3/4 (back)

POWER OUT 5
400 WATTS
BRIDGE 5/6
800 WATTS
POWER OUT 6
400 WATTS
AUTO/STEADY ON
Channel 5/6 (back)

POWER OUT 7
400 WATTS
BRIDGE 7/8
800 WATTS
POWER OUT 8
400 WATTS
AUTO/STEADY ON
Channel 7/8 (back)

Input Slot B

Optional Input Modules

8xIN-SYM
8 Channel sym. Input Module

INPUT 1 sym.
INPUT 2 sym.
GROUND 1/2
INPUT 3 sym.
INPUT 4 sym.
GROUND 3/4
INPUT 5 sym.
INPUT 6 sym.
GROUND 5/6
INPUT 7 sym.
INPUT 8 sym.
GROUND 7/8

8xIN-CINCH
8 Channel Chinch Input Module

INPUT 1 Chinch
INPUT 2 Chinch
GROUND 1/2
INPUT 3 Chinch
INPUT 4 Chinch
GROUND 3/4
INPUT 5 Chinch
INPUT 6 Chinch
GROUND 5/6
INPUT 7 Chinch
INPUT 8 Chinch
GROUND 7/8

POWER ON/OFF (front)
USB PORT (front)
DISPLAY/CONTROLS/LED INDICATORS (front)
ETHERNET PORT (back)

GAIN -6 / +4 dB
Channel 1 – 8
(back)

VCA INPUTS

| 0 V | Nom. Gain |
| 10 V | – ∞ (Mute) |

VCA 8
VCA 7
VCA 6
VCA 5
VCA 4
VCA 3
VCA 2
VCA 1

STAND BY CONTACT N/C

+15V
0
DC OUT
60 mA max.

FAULT CONTACT N.O.

DC / AC

MAINS
230 VAC
50 Hz

12

1-channel and multi-channel volume control with WP-V or RP-V

The volume controls can be used to control several channels of one or more power amplifiers in parallel. Only the VCA inputs are connected within a power amplifier.

When connecting several power amplifiers a common ground connection must also be established.
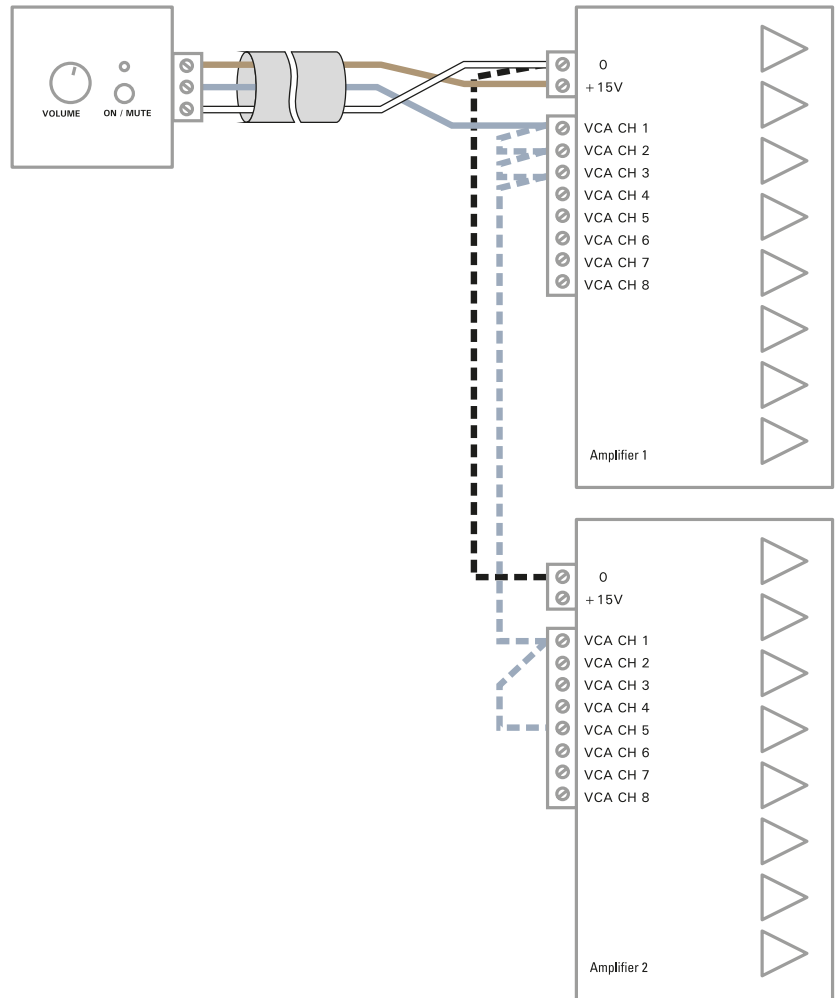
1-channel volume control

The DV module can be used for volume control with potential-free Up/Down contacts. It has a control range of 0 to -80 dB in 64 levels. The final setting is saved when switching off and on again
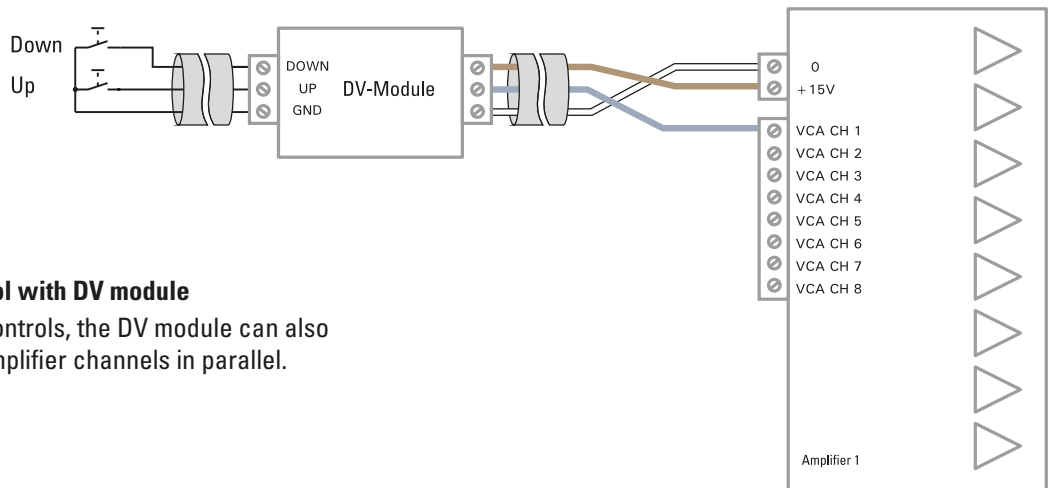
Multi-channel volume control with DV module

As with the analog volume controls, the DV module can also be used to control several amplifier channels in parallel.

13

1-channel volume control with Dimmer actuator 0 – 10 V + switching contact

With passive 0 – 10 V dimmer actuators (e.g. for KNX bus) or a smart home system with appropriate 0 – 10 V outputs, the volume of the amplifier channels can be controlled individually or in groups. An ON/OFF function (mute) can be implemented using additional potential-free switches.
For this purpose, the 15 V output of a power amplifier is connected to the VCA inputs to be controlled and the associated actuator via a 1.5 kOhms resistor.
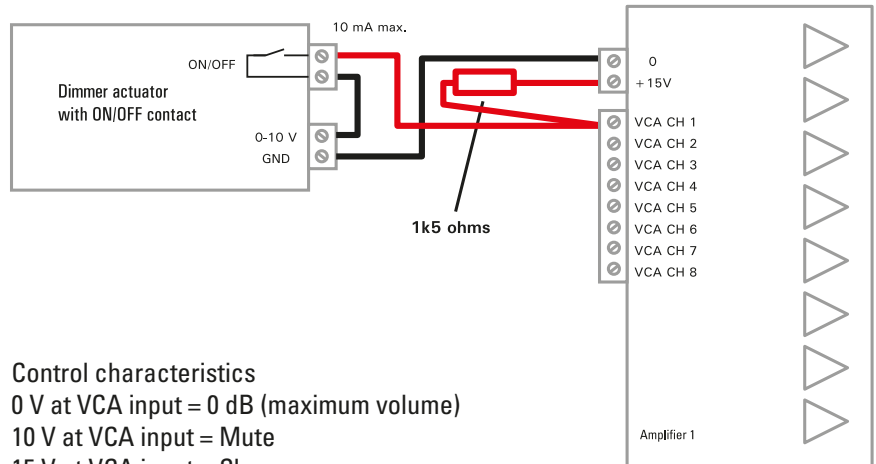
Control characteristics
0 V at VCA input = 0 dB (maximum volume)
10 V at VCA input = Mute
15 V at VCA input = Sleep

Multi-channel volume control with Dimmer actuator 0 – 10 V + switching contact

As with the analog volume controls, the 0 – 10 V outputs of dimmer actuators or smart home systems of several amplifier channels can also be controlled in parallel.
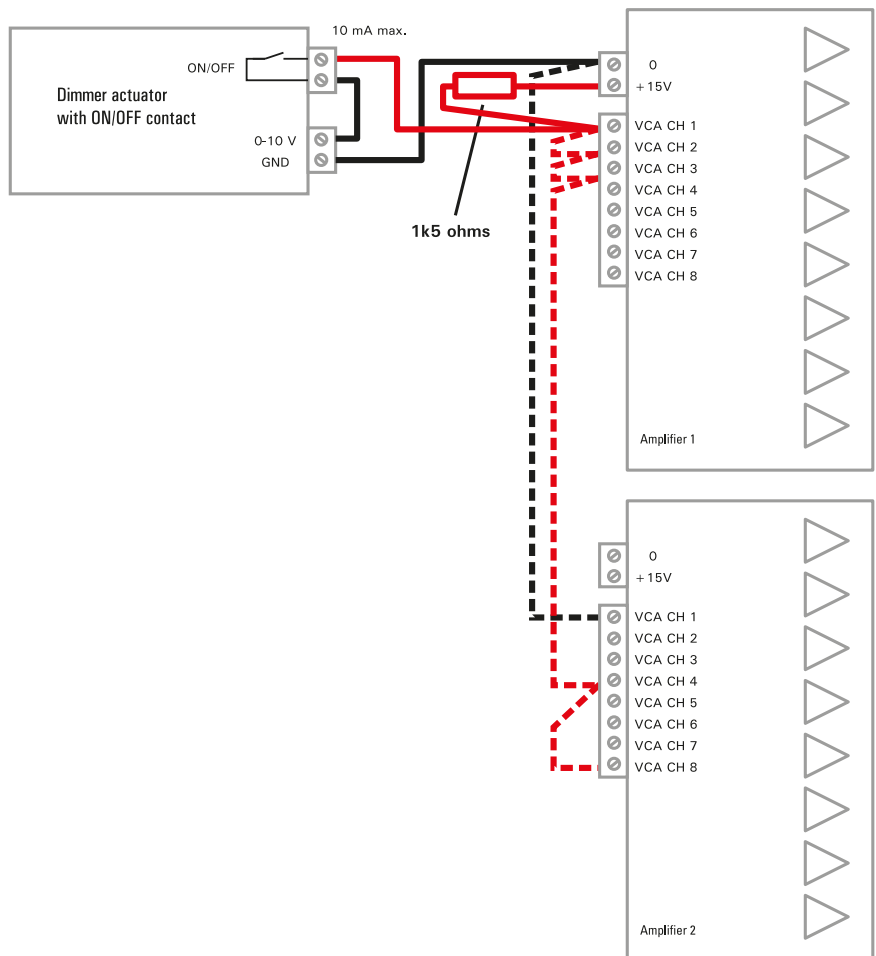
Dimensions PA DSC Series 1 U

Front

483

Top view

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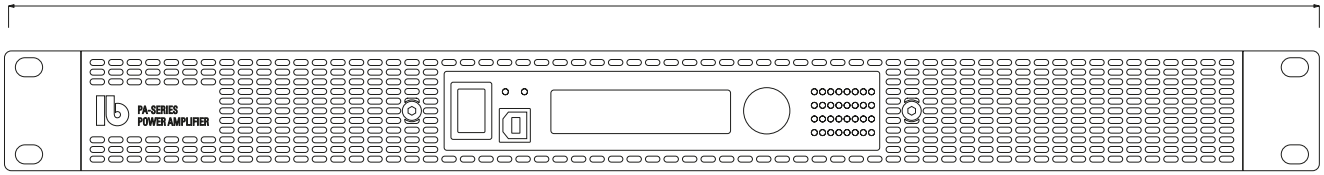
Backsides (examples)

PA 4100/4200/4400 DSC
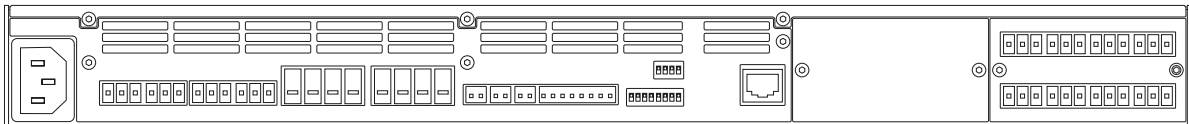
PA 6100/6200 DSC CINCH
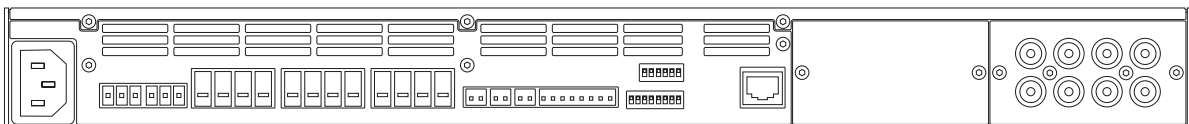
PA 8100/8200 DSC DANTE

44

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Front

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Top view

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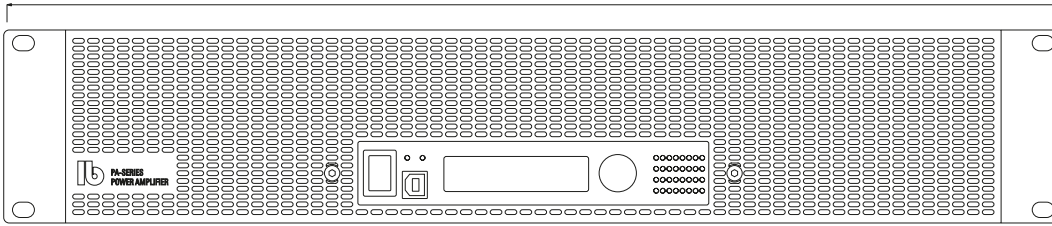
Backsides (examples)

PA 6400 DSC
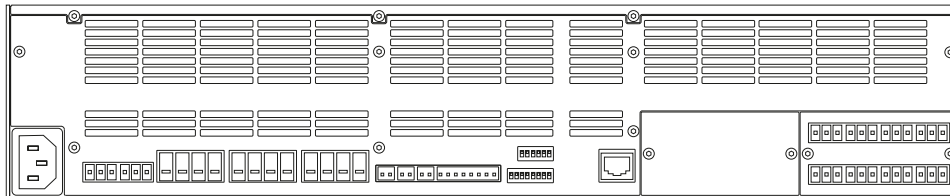
PA 6400 DSC CINCH
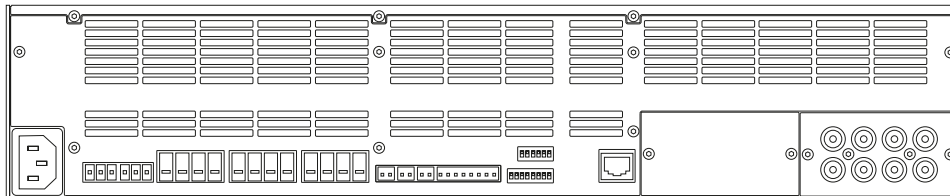
PA 8400 DSC DANTE
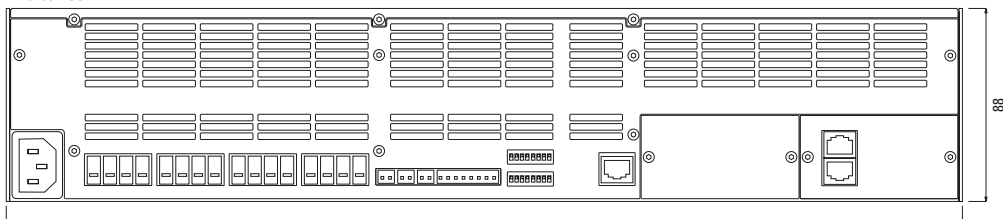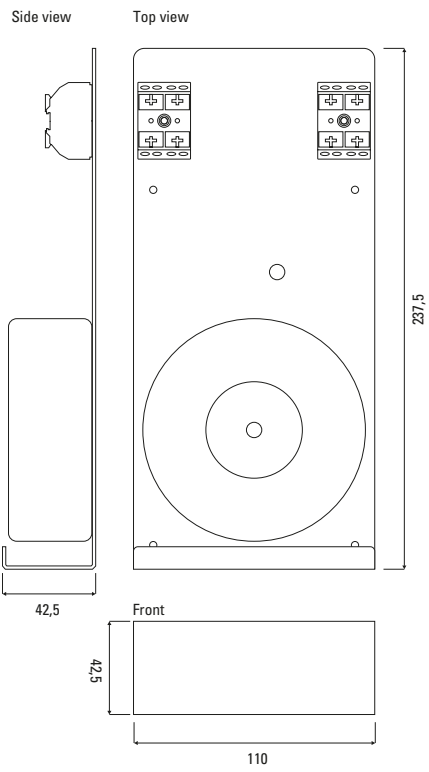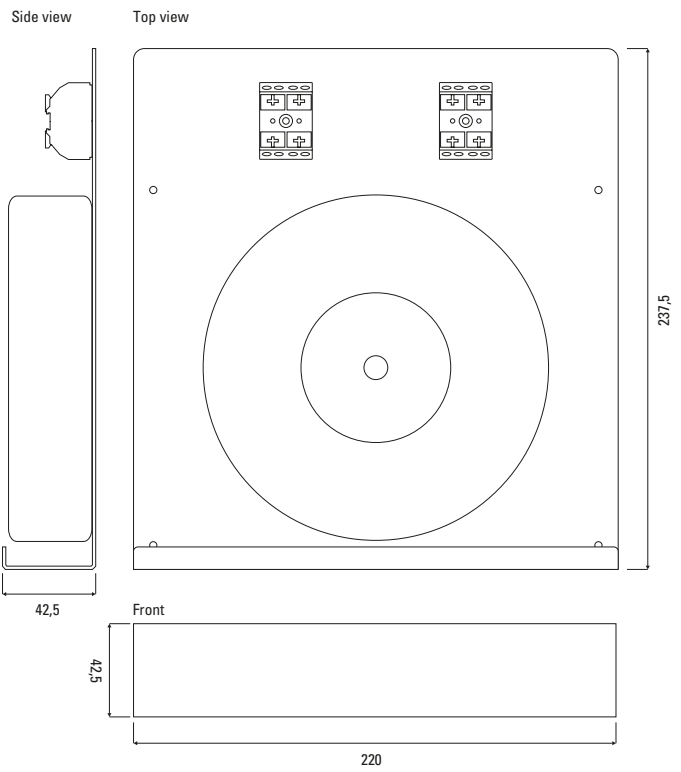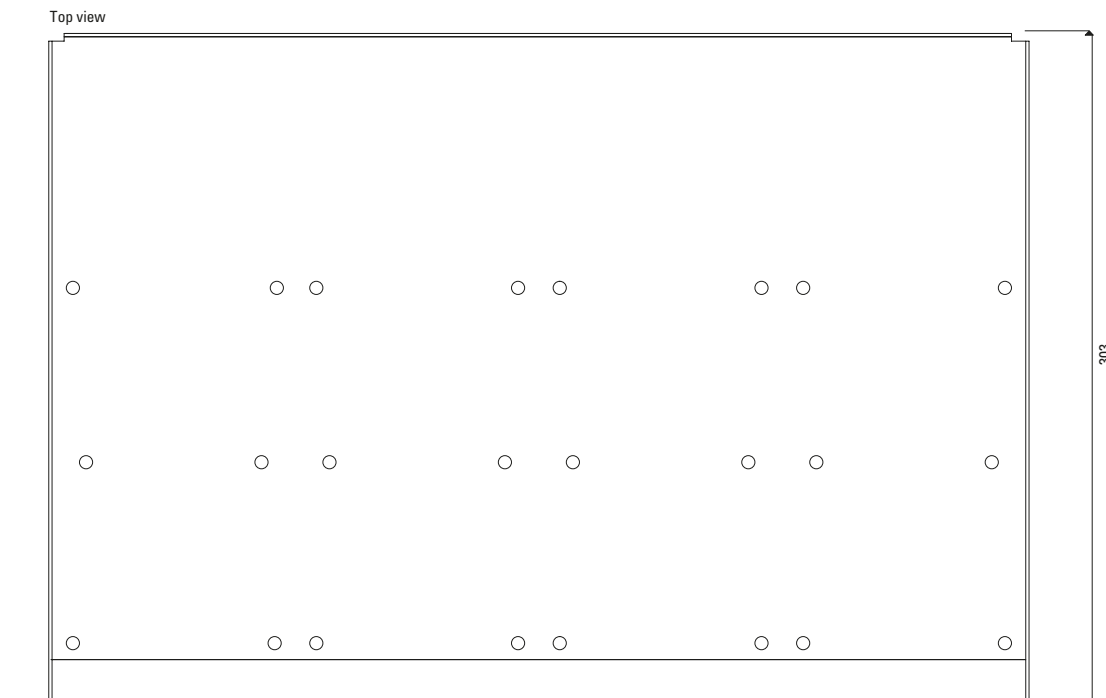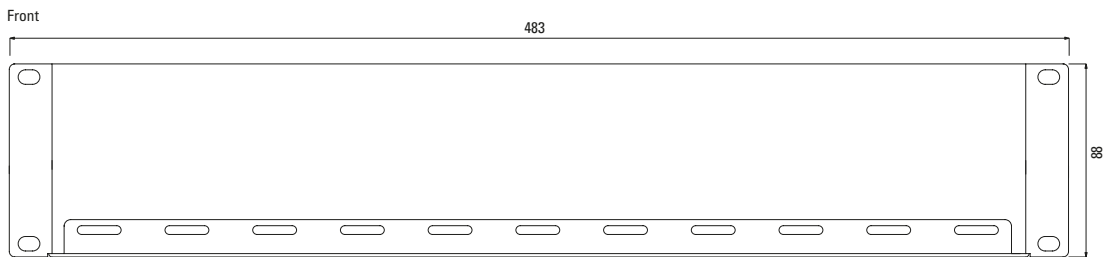
88

436

PA-T 100

Side view   Top view

237,5

42,5

Front

42,5

110

PA-T 200/400

Side view   Top view

237,5

42,5

Front

42,5

220

PA-T 2U

Front

483

88

Top view

303

PA-T 800

Side view   Top view

237,5

86,5

Front

86,5

220

PA-T 1U

Front

483

44

Top View

306

WP-V

Front   Side

70

70

32

DV Module

Front

25

32

Side

19

56

RP-V

RP-V

Front   Side

43

72

35

RP-1U

Front

44

Top View

23

483
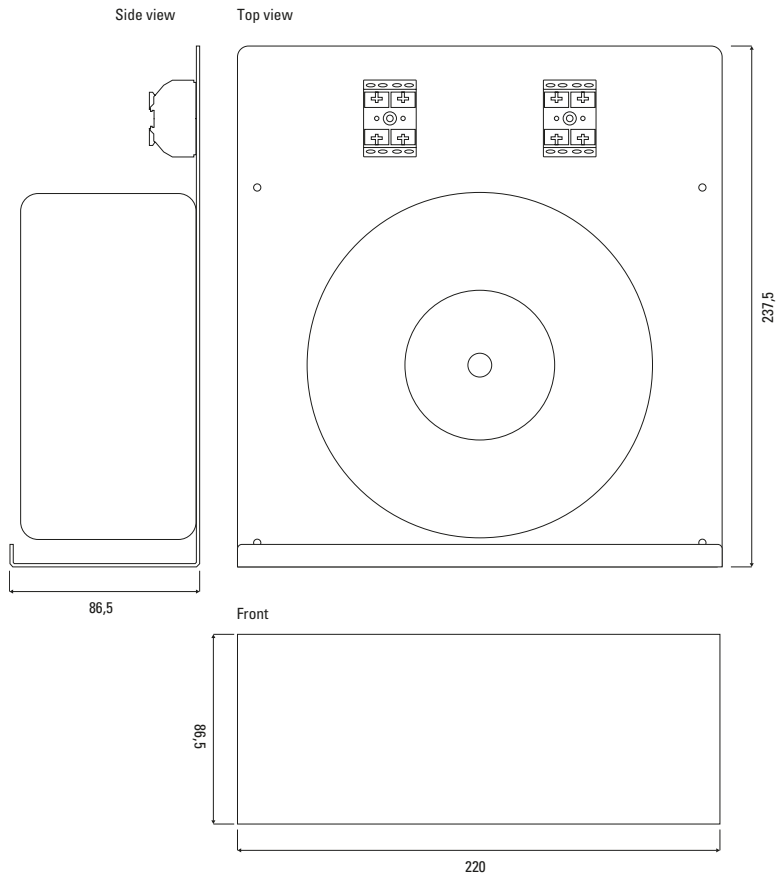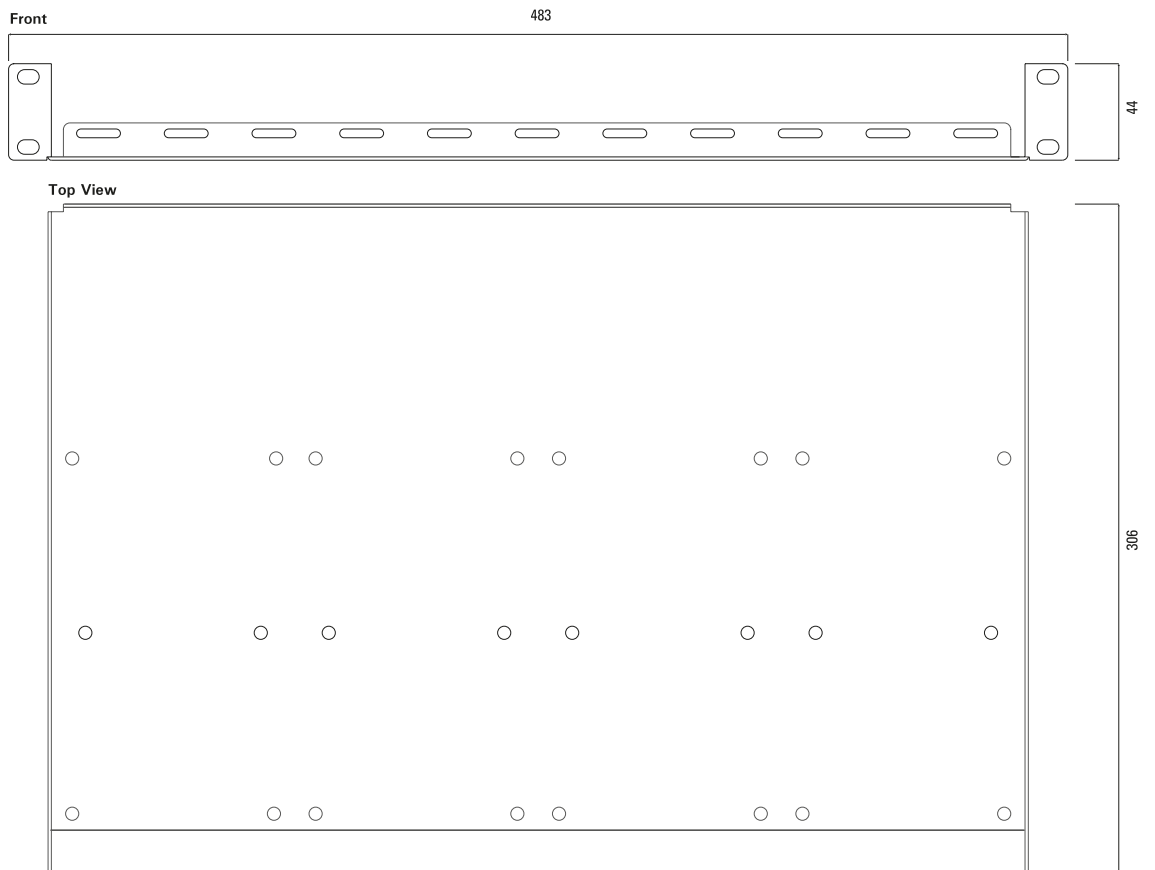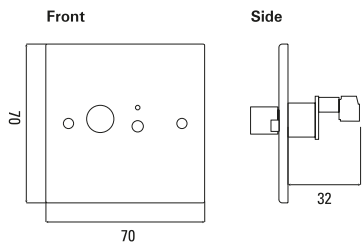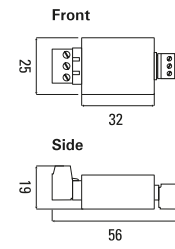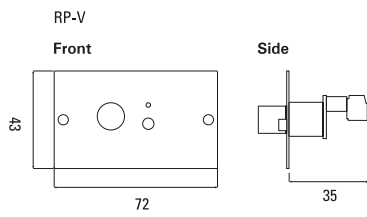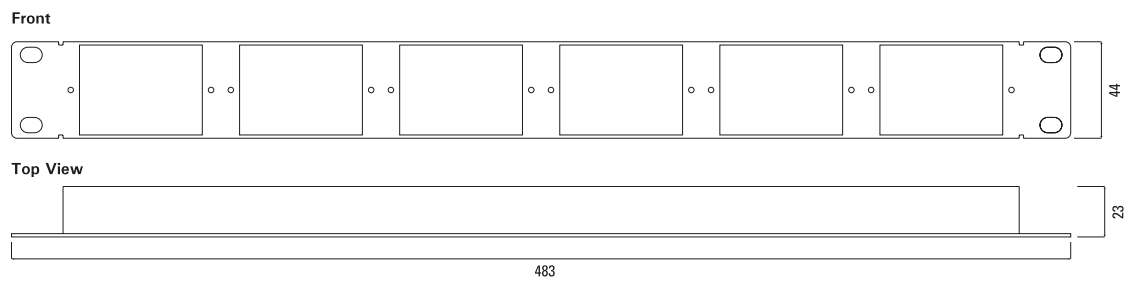
LB AUDIO CONTROL

The LB AUDIO CONTROL app is available for download on our homepage. Versions for Windows and Mac OS are available. Follow the installation steps during the installation process. The icon for running the app is installed on the desktop.

Audio Control
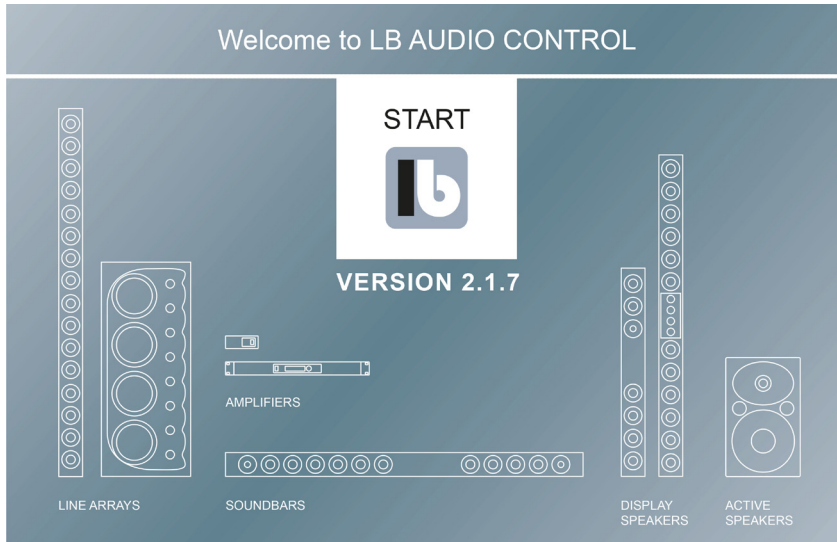
If the new start screen for version 2.1.7 does not appear when installing over an old version of LB AUDIO CONTROL, please refresh the browser cache using the key combination [CTRL] + [SHIFT] + [R] (For EDGE Browser with key combination [CTRL] + [F5]).
Then click on Start and perform a refresh in the overview window using the same key combination.
Then close the app. The next time you open it, the new version will be available.

OVERVIEW-Window

When you start the LB AUDIO CONTROL app, the Overview window opens.
All LB devices detected in the network are displayed here. Virtual demo devices can also be inserted via the menu.

Firmware Update

ATTENTION!
Settings and presets can be lost due to the firmware update. Before firmware update please save presets on the PC. After the firmware update, the presets can then be loaded again.
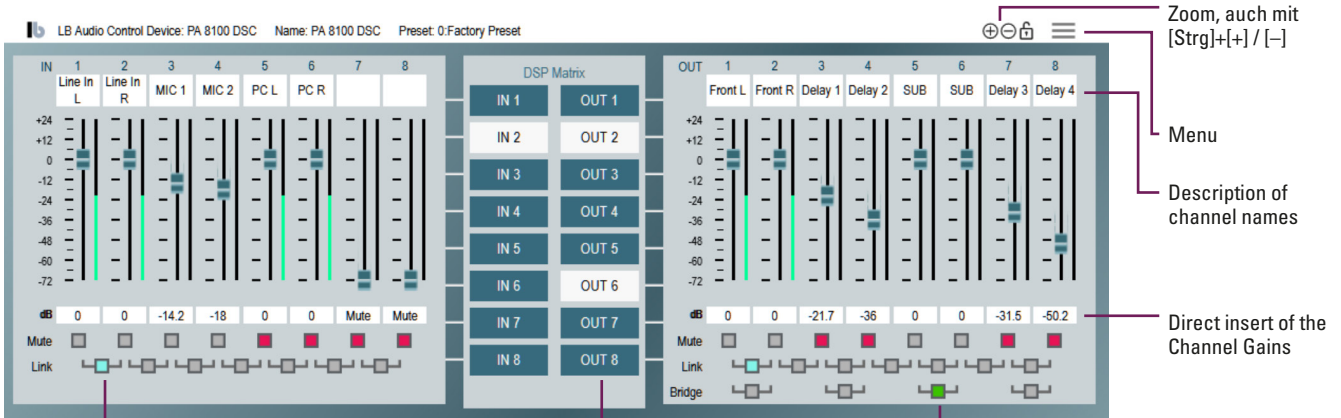
Remove device

Open device (DEVICE-Window)

Save settings (Device name and IP address + DHCP)

If necessary, fixed IP addresses can be assigned, then DHCP must be switched off

Assign device names

Devices Switch on/of

By marking the corresponding line the devices in the list can be moved using the arrow keys ▲ / ▼

DHCP (automatic acquisition of the IP address from the DHCP server in the network)

DEVICE Window

The open device with all inputs and outputs is displayed in the DEVICE window. The input and output settings can be made here.

Zoom, auch mit [Strg]+[+] / [–]

Menu

Description of channel names

Direct insert of the Channel Gains

Link: The settings of the first channel are transferred to the other linked channels. These are displayed in white. Only the input mixer of linked output channels can be edited with the right mouse button.
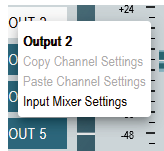
In the DSP matrix the individual input and output Windows can be opened to set additional parameters.
These channel settings can be copied and pasted with the right mouse button.

Bridge couples the two channels. The 2nd channel is inverted. Settings can only be made in the 1st channel.
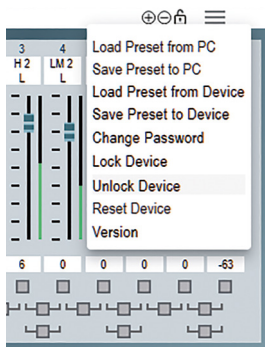

Menu Device Window
Presets can be loaded from the device or from the PC. Presets can also be saved on the device or PC.

Changing the passwords: Passwords for USER and ADMIN are assigned at the factory. These should be replaced with project-related passwords and documented. Presets can also be saved on the device or PC.
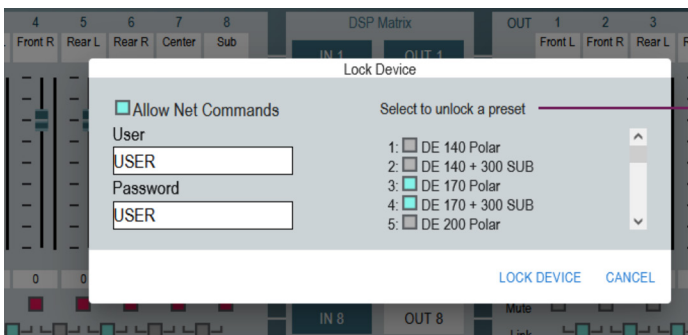
Lock functions
Devices can be locked on two levels.
The lower level is "USER", the higher level is "ADMIN".

Resets the device to factory settings.
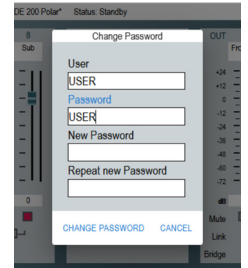
LOCK Functions

If necessary, network commands can also be allowed on locked devices. This also makes it possible to control locked devices via media controls.

If necessary, individual presets can also be allowed on locked devices. This allows the user to switch between different operating scenarios.

Lock Levels

The two user levels USER and ADMIN are available for all devices. The ADMIN user level has priority over the USER level, i.e. a device locked at the USER level can be unlocked by the ADMIN, but not the other way around. The factory passwords "USER" and "ADMIN" should be replaced by project-related passwords and documented.

The settings for the individual channels are made in the channel windows.

Input-Window

Input Gain + Level Meter

Delay
Device type dependent

Limiter per channel   Compressor per channel

Output-Window (for PA-S and PA Series amplifiers)

Input Mixer:
For each output, the inputs can be mixed as requested

Delay
Device type dependent

Limiter
per channel

Compressor
per channel

Output Gain + Level Meter

Invert: rotates the phase of the channel by 180°

Parametrische Filter: there are 10 filters available for each channel

High and low pass filters per channel

Network commands to change device settings

Successfully changing DSP parameters via network commands is responded to with the HTTP status code "200 OK". Alternatively, "cmds" can be replaced by "smds" in the network command. Then the overall status (see <DSC IP>/status below) is returned as a response.

Function	URL	Examples URLs
MUTE	<DSC IP>/cmds/mute/<CH>/<i/o>	Mute input 1: http://192.168.0.100/cmds/mute/1/i
UNMUTE	<DSC IP>/cmds/unmute/<CH>/<i/o>	Unmute input 2: http://192.168.0.100/cmds/unmute/2/i
GAIN	<DSC IP>/cmds/gain/<CH>/<i/o>/<value>	Gain input 1 auf -4,8 dB: http://192.168.0.100/cmds/gain/1/i/-4.8
MIXER	<DSC IP>/cmds/mixer/<CH OUT>/o/<CH IN>/<value>	Mixer Output 3, Input 7 auf -6 dB http://192.168.0.100/cmds/mixer/3/o/7/-6
PRESET	<DSC IP>/cmds/preset/<num>	Select preset 10: http://192.168.0.100/cmds/preset/10
PRESET LOCK	<DSC IP>/cmds/preset/<num>/lock/<true/false>	Unlock (allow) Preset 2 http://192.168.0.100/cmds/preset/2/lock/false
POWER	<DSC IP>/cmds/power/<on/off>	Switch device on/off http://192.168.0.100/cmds/power/on http://192.168.0.100/cmds/power/off

Network commands for status queries

All devices output status information in JSON format. Only the available channels are listed.

Function	URL	Examples URLs
STATUS	<DSC IP>/status	Get overall status (power, preset, gain, mute, mixer) http://192.168.0.100/status

Example JSON response:

```
{ „power": „sleep", „preset": 1, „channels": [
{ „channel": 1, „type": „i", „gain": -12.0, „muted": true},
{ „channel": 2, „type": „i", „gain": -12.0, „muted": true},
...]}
```

Function	URL	Examples URLs
STATUS CH	<DSC IP>/status/<CH>/<i/o>	Get status of input channel 1 (gain, mute) http://192.168.0.100/status/1/i

Example JSON response:

```
{ „channel": 1, „type": „i", „gain": -3.0, „muted": false}
```

Function	URL	Examples URLs
LEVELS	<DSC IP>/levels	Read out all levels and gain reductions (limit) http://192.168.0.100/levels

Example JSON response:

```
{ „channels": [
{ „channel": 1, „type": „i", „level": 4.0, „limit": -3.2 },
{ „channel": 2, „type": „i", „level": 4.0, „limit": -1.6 },
...]}
```

Function	URL	Examples URLs
LEVELS CH	<DSC IP>/levels/<CH>/<i/o>	Channel read out level and gain reduction of input 2 (limit) http://192.168.0.100/levels/2/i

Example JSON response:

```
{ „channel": 2, „type": „i", „level": 4.0, „limit": -1.6 }
```

Function	URL	Examples URLs
LOCK STATUS	<DSC IP>/lockstatus	Read out locking status (true for locked) http://192.168.0.100/lockstatus

Example JSON response:

```
{„Device": true,
„network commands": true,
„presets": {
„0": true,
„1": false,
„2": false,
„3": true,
„4": true,
…}}
```

Function	URL	Examples URLs
INFO	<DSC IP>/info	Read out global device info http://192.168.0.100/info

Example JSON response:

```
{
„Name": „DL-A 2.4 DSC",
„Device": „DL-A 2.4",
„PCB": „C416 v02",
„MAC": „44-6F-D8-43-00-23",
„Version": {
„BL": „1.2.12",
„MCU": „2.1.0",
„DSP": „2.1.5"},
„preset": {
„num": 0,
„name": „DL-A 2.4: 0°",
„changed": true},
„Power": „on",
„Runtime [h]": „0:00:05",
„Bootmode": „BL"
}
```

Deutsche Schule Meran / Sound System Auditorium