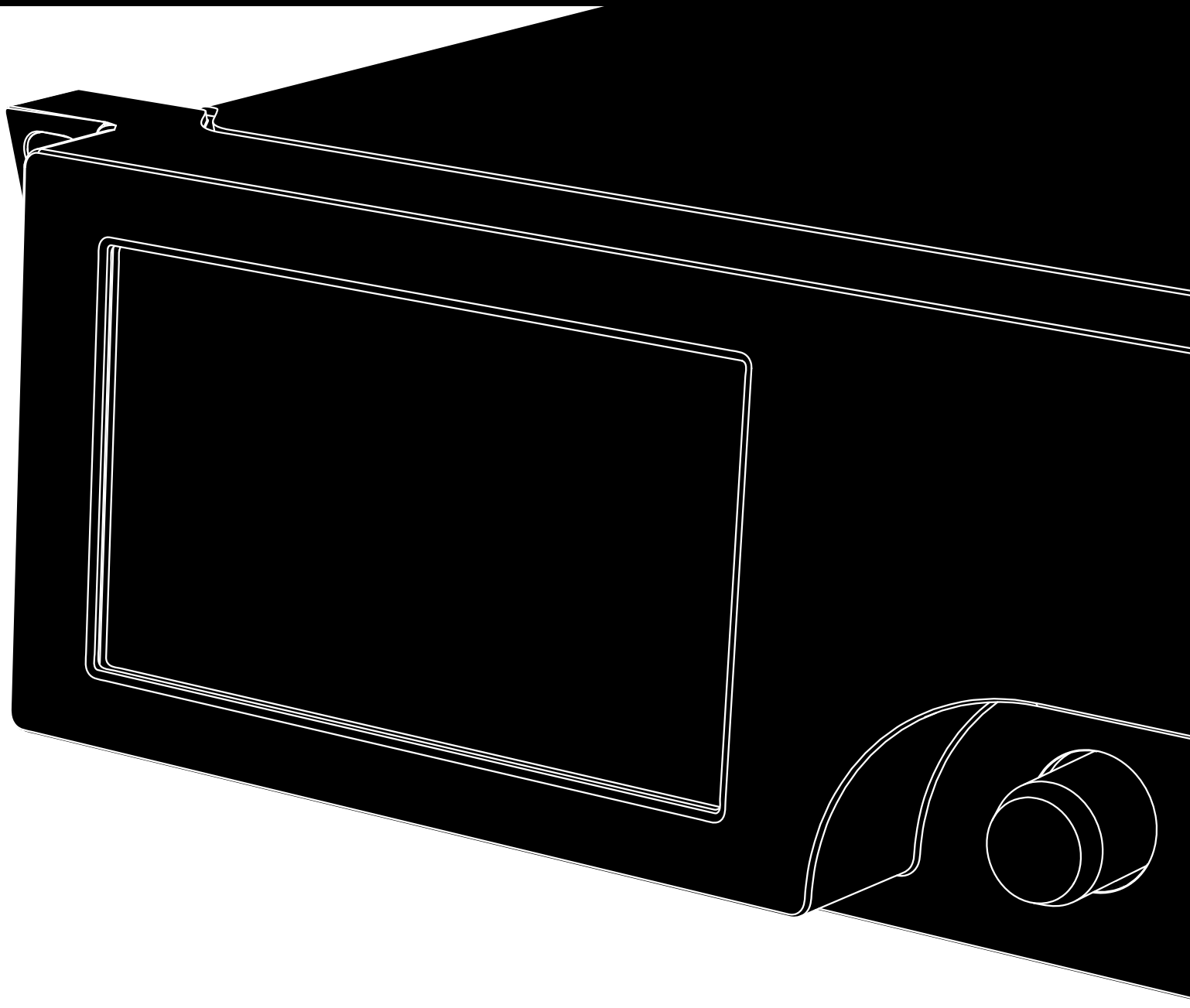
D40
Start-up manual
1.4 en



d&b audiotechnik

Notes on document version
All previous versions of this document are hereby no longer valid.

Version 1.4:
Technical specifications: A/D conversion details added.

Refer to:
⇒ "Digital Signal Processing" on page 7.

General information

D40 Start-up manual

Version: 1.4 en, 06/2023, D2037.EN .01

Keep this document with the product or in a safe place so that it is available for future reference.

We recommend you to regularly check the d&b website for the latest version of this document.

When reselling this product, hand over this document to the new owner.

If you supply d&b products, please draw the attention of your customers to this document. Enclose the relevant documents with the systems. If you require additional documents for this purpose, you can order them from d&b.

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docadmin@dbaudio.com, www.dbaudio.com

IMPORTANT SAFETY INSTRUCTIONS

Explanation of graphical symbols

The lightning symbol within a triangle is intended to alert the user to the presence of uninsulated "dangerous voltages" within the unit's chassis that may be of sufficient magnitude to constitute a risk of electric shock to humans.

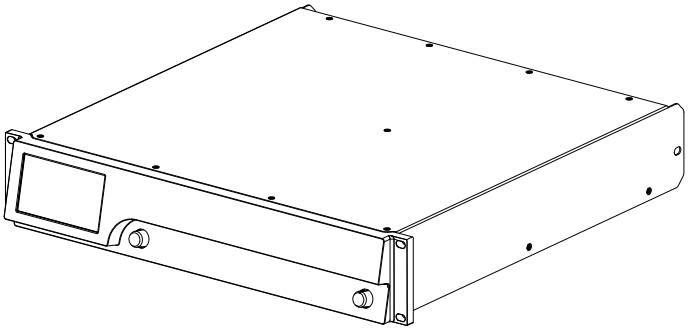
The exclamation point within a triangle is intended to alert the user to the presence of important operating and service instructions in the literature accompanying the product.

Before using this product, carefully read the applicable items of the following safety instructions.

1. Keep these instructions for future reference.
2. Read these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. **WARNING!** To reduce the risk of fire or electric shock:
   - Do not expose this unit to rain or moisture.
   - Keep water or other liquids away from the unit.
   - Do not place liquid filled containers, for example beverages, on top of the unit.
   - Do not operate the unit while it is wet or standing in liquid.
6. Always operate the unit with the chassis ground wire connected to the electrical safety earth.
   Do not defeat the safety purpose of a grounding-type plug.
   A grounding-type plug has two blades and a third grounding prong. The third prong is provided for your safety.
   If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.
7. Do not use this unit if the power cord is damaged or frayed. Protect the power cord from being walked upon or pinched, particularly at the plugs and the point where it exits from the apparatus.
8. The unit is intended for use in a 19" rack. Follow the mounting instructions. When a rack on wheels is used, exercise caution when moving the loaded rack to avoid injury from tipping over.
9. Unplug this apparatus during lightning storms or when unused for long periods of time.
10. Never connect an output pin to any other amplifier input or output pin or to the earth (ground). This may damage the unit or lead to electric shock.
11. Lay all cables connected to the unit carefully so that they cannot be crushed by vehicles or other equipment and that no one can either step on them or trip over them.
12. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been damaged in any way such as:
    - Power-supply cord or plug is damaged.
    - Liquid has been spilled into the unit.
    - An object has fallen into the unit.
    - The unit has been exposed to rain or moisture.
    - The unit does not operate normally.
    - The unit was dropped or the chassis is damaged.
    - Do not remove top or bottom covers. Removal of the covers will expose hazardous voltages. There are no user serviceable parts inside and removal may void the warranty.
13. Use the mains plug as the disconnecting device and keep it readily accessible. If the mains plug is not readily accessible due to mounting in a 19" equipment cabinet, then the mains plug for the entire rack must be readily accessible.
14. An experienced user must always supervise the equipment, especially if inexperienced adults or minors are using the equipment.

Contents

1 Intended use



The d&b D40 amplifier is designed for mobile applications and is intended to be used with applicable d&b loudspeakers. A "LINEAR" setup is available allowing the amplifier to be used as a linear power amplifier.

NOTICE!

The device complies with the electromagnetic compatibility requirements of EN 55032:2019 (product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use) for the environment Class B (residential).

Acoustic interference and malfunctions may occur if the unit is operated in the immediate vicinity of high-frequency transmitters (e.g. wireless microphones, mobile phones, etc.). Damage to the device is unlikely, but cannot be excluded.

1.1 About this manual

With respect to the vast functionality and high complexity of the device, this manual covers the basic safety instructions as well as the vital technical specifications and instructions for startup.

A full version of this manual (⇒ Reference manual) with comprehensive information is available for download on the related product page of the d&b website at www.dbaudio.com.

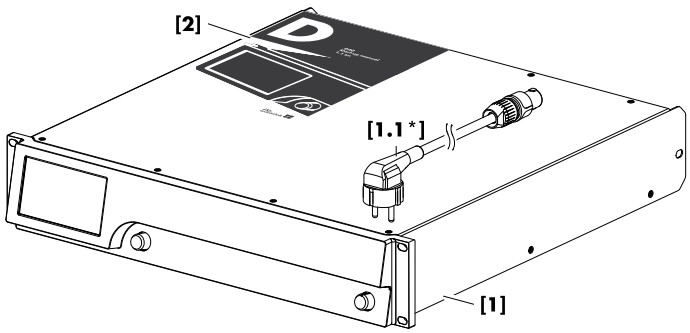
1.2 Loudspeaker types

The maximum number of cabinets driven by each channel varies depending on their nominal impedance. It can be found in the respective loudspeaker manual and also in the data section of each loudspeaker product page on the d&b website at www.dbaudio.com.

The minimum recommended impedance per channel is 4 ohms.

Nom. impedance	Cabinets per channel
4 Ω	1
8 Ω	2
12 Ω	3
16 Ω	4
20 Ω	5

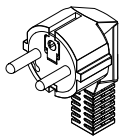
A list of d&b loudspeakers supported by the amplifier is included in the Release notes of the amplifier firmware. The latest version can be found on the d&b website at www.dbaudio.com.



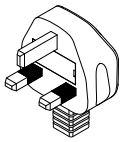
Before starting up the device, please verify the shipment for completeness and proper condition of the items.

If there is any sign of obvious damage to the unit and/or the power cord, do not operate the unit and contact your local dealer from whom you received it.

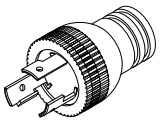
Pos.	Qty.	d&b Code	Description
[1]	1	Z2850	d&b D40 Amplifier
Including:			
[1.1*]	1	Z2612.xxx	Power cord (specific to country*)
[2]	1	D2037.EN .01	d&b D40 Start-up manual.



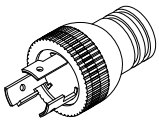
Z2612.000
3-pin Schuko
CEE 7/7



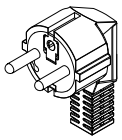
Z2612.010
3-pin UK
BS 1363A



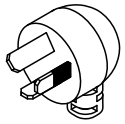
Z2612.025
3-pin U.S.
NEMA L6-20P



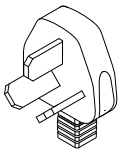
Z2612.035
3-pin Japan
NEMA L6-20P



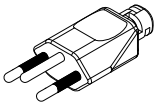
Z2612.040
3-pin South Korea
KS C8305



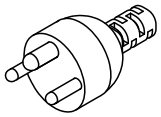
Z2612.050
3-pin Australia
AS 3112



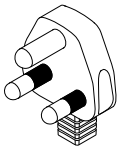
Z2612.060
3-pin China
GB 2099



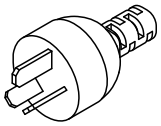
Z2612.070
3-pin Switzerland
SEV 1011



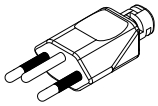
Z2612.090
3-pin Denmark
Afsnit 107-2-D1



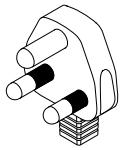
Z2612.100
3-pin South Africa
SANS 164-1



Z2612.110
3-pin Argentina
IRAM 2073



Z2612.120
3-pin Brazil
NBR 14136



Z2612.130
3-pin India
IS 1293

***Mains plug types and associated standards**
(Similar illustrations, not in scale)

Operating conditions

Operating temperature (*continuous/**short-term) ..... –10 °C ... +40*/+50** °C (+14 °F ... +104*/+122** °F)

Storage temperature ..... –20 °C ... +70 °C (–4 °F ... +158 °F)

Humidity (rel.), non-condensating 70%

Power supply

Switched mode power supply with automatic mains range selection and active Power Factor Correction (PFC).

Mains connector ..... powerCON® TRUE 1 TOP

Rated mains voltage (High range) ..... 208 - 240 V, 50 - 60 Hz

Rated mains current (High range) ..... 13 A

Rated mains voltage (Low range) ..... 100 - 127 V, 50 - 60 Hz

Rated mains current (Low range) ..... 20 A

Protection circuits

Mains and power supply: Overvoltage and undervoltage, inrush current limiter, internal fuse.

Output: Overcurrent, DC offset, HF voltage limiter, pop-noise suppression.

Cooling: Temperature-dependent fan, self-resetting overtemperature protection.

Power consumption (typical values)

Standby ..... 13 W

Idling ..... 130 W

Peak output ..... 2900 W

Audio power outputs*

SPEAKER OUTPUTS A/B/C/D ..... 4 x NL4

4 CHANNEL OUTPUT ..... 1 x NL8

Maximum output voltage/current ..... 180 V_{peak}/35 A_{peak}

Output power rating EIA-426B noise CF 12 dB ..... 4 x 2000 W/8 Ω ..... 4 x 2400 W/4 Ω

Sine wave 1 kHz, long term, +40 °C (+104 °F) ..... 4 x 250 W/4 Ω

Frequency response (–1 dB, Linear mode) ..... 35 Hz – 25 kHz

Gain (Linear mode @ 0 dB) ..... 31 dB

Output noise/Dynamic range

Output noise (BW 20 kHz)/dynamic range (BW 20 kHz, reference 180 V_{pk}) .....

Analog input ..... 350 μV_{RMS}/111 dB

Analog input, A-weighting ..... 250 μV_{RMS}/114 dB

Digital input ..... 200 μV_{RMS}/116 dB

Digital input, A-weighting ..... 150 μV_{RMS}/119 dB

THD+N / Crosstalk

THD+N (unweighted, 20 – 20 kHz) .....

4x 250 W/8 ohms ..... < –86 dB/0.005 %

4x 250 W/4 ohms ..... < –83 dB/0.007 %

Crosstalk (20 – 20 kHz) ..... < –70 dBr ..... 4x 250 W into 8/4 Ω

Analog inputs and outputs

INPUT A1 - A4 ..... 3 pin XLR female

Pin assignment ..... 1 = GND, 2 = pos., 3 = neg.

Input impedance ..... 32 kΩ, electronically balanced

CMRR @ 100 Hz/1 kHz / 10 kHz ..... >80/>80/>70 dB

Maximum input level (balanced/unbalanced) ..... +25/+18 dBu ..... +27.3 dBu @ 0 dBFS

LINK A1 - A4, parallel to input ..... 3 pin XLR male

Pin assignment ..... 1 = GND, 2 = pos., 3 = neg.

Digital inputs and outputs

IN - D1/2, D3/4 ..... 3 pin XLR female, AES3

Pin assignment ..... 1 = GND, 2 = AES Signal, 3 = AES Signal

Input impedance ..... 110 Ω, transformer balanced

Sampling frequency ..... 44.1 | 48 | 96 | 192 kHz

Word length ..... 16 - 24 bit

OUT - D1/2, D3/4 ..... 3 pin XLR male ..... electronically balanced

Output modes ..... Mains on: analog signal buffering (refresh) ..... Mains off/power fail: bypass relay

Network (PRI/SEC)

Connector type ..... 2 x RJ 45 (etherCON®)

PRI ..... Remote control via R1, Star topology

SEC ..... Currently disabled

IP settings (factory default)

IP address/Subnet mask 192.168.1.40/255.255.255.0

Digital Signal Processing

System start-up time ..... < 21 sec.

Time to tone (Standby/ReadyStandby) ..... < 3/< 1 sec.

Time to tone (Off/Wake on Audio) ..... < 21 /< 4 sec.

Conversion ..... 96 kHz

Latency analog/digital (AES) input ..... 0.3/0.3 msec.

A/D conversion ..... 27 Bit (dual-stacked A/D converters)

Internal processing ..... Combination of high-resolution fixed point ..... and floating point processing

Equalizer ..... two user definable 16-band equalizers ..... Filter types: PEQ/Notch/HiShlv/LoShlv/Asym

Delay ..... 0.3 msec. - 10 sec.

Frequency generator ..... Pink noise or Sine wave 10 Hz – 20 kHz

Controls and indicators

POWER ..... Mains power switch

SCROLL/EDIT ..... Digital rotary encoder

TFT color touchscreen ..... 4.3"/480 x 272 pixels

Fan noise emission

Rack mounted, measured on axis, 1 m (3.3 ft) to front panel, A-weighting.

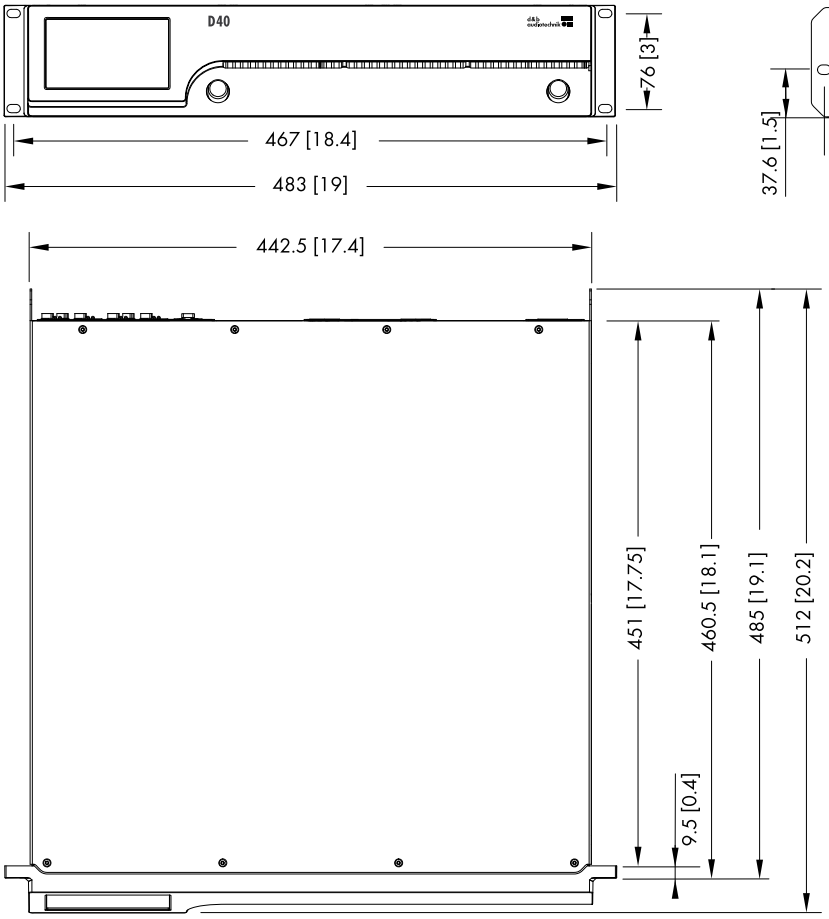
Min./Max. RPM ..... 30/50 dB(A)

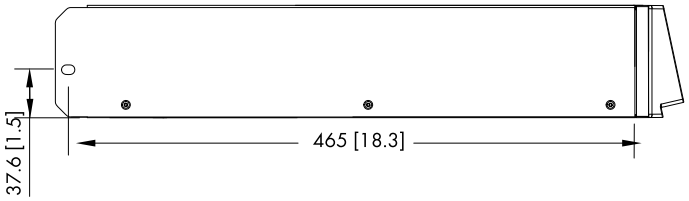
.....Ambient temperature 23 °C/73.4 °F

Dimensions and weight

Height x width x depth.....2 RU x 19" x 465 mm (18.3")

Weight .....13.8 kg/30.4 lb





D40 enclosure dimensions in mm [inch]

***Audio power output – Measurement references:**

All data is valid for 23 °C (73.4 °F) ambient temperature and 230 VAC/50 Hz mains supply.
The power rating of noise signals is defined as the maximum of the instantaneous output power divided by a factor of two.

The power of burst signals refers to the power during the "on" period.
The duration of the peak output of a sine wave signal is defined at a drop of 0.5 dB/10% relative to the maximum output power.

EIA-426B noise			
Crest factor	**Load**	**Power rating**	**Power average**
12 dB	4 ohms 8 ohms	4 x 2400 W 4 x 2000 W	4 x 300 W 4 x 250 W
9 dB	4 ohms 8 ohms	4 x 1300 W 4 x 2000 W	4 x 325 W 4 x 500 W
6 dB	4 ohms 8 ohms	4 x 700 W 4 x 1150 W	4 x 375 W 4 x 575 W
1 kHz burst			
On/off time	**Load**	**Power**	
20 ms/0 dB 480 ms/–20 dB	4 ohms 8 ohms	4 x 1200 W 4 x 1150 W	
200 ms/0 dB 600 ms/–20 dB	4 ohms 8 ohms	4 x 700 W 4 x 750 W	
1 kHz sine wave			
Channels used	**Load**	**Max. output power**	**Duration of max. output**
1	4 ohms 8 ohms	1 x 2400 W 1 x 2000 W	110 ms 2000 ms
4	4 ohms 8 ohms	4 x 2400 W 4 x 2000 W	5 ms 4 ms

3.1 Current/power draw and thermal dissipation

Measurement references

For all noise signals, the values are measured at the maximum level just before any amplifier limiter activity (no Gain Reduction).

Noise CF 12 dB: Noise signal according to EIA-426-B with a crest factor of 12 dB.
This represents the use case of live music or less compressed recorded music.

Noise CF 9 dB: Noise signal according to EIA-426-B with a crest factor of 9 dB.
This represents the use case of music with medium compression.

Noise CF 6 dB: Noise signal according to EIA-426-B with a crest factor of 6 dB.
This represents the use case of heavily compressed music.

Sine wave (100 ms): 1 kHz sine wave signal, 0 dBFS input level and a duration of 1 s.
The RMS current value is calculated over a 100 ms time window. This window is stepped in increments of 10 ms over the recording. The resulting value is the highest current within a window of 100 ms.

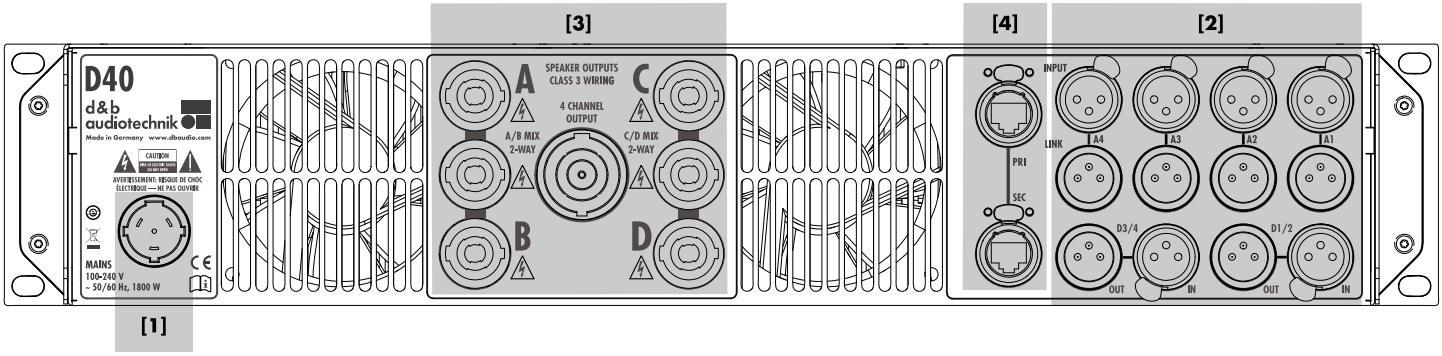
230 VAC / 50 Hz / 0.5 Ω Source impedance - all channels driven								
State	**Load [ohms]**	**Mains current [A RMS]**	**Power factor**	**Input power [W]**	**Output power [W]**	**Power loss [W]**	**BTU/hr**	**kCal/hr**
Off	-	0.24	0.03	1.5	-	1.5	5	1
Standby	-	0.26	0.22	13.5	-	13.5	46	12
Standby/Wake on Audio	-	0.29	0.31	20.8	-	20.8	71	18
ReadyStandby	-	0.43	0.54	52.6	-	52.6	179	45
Eco	-	0.83	0.54	103	-	103	351	89
Idling	-	0.75	0.74	127	-	127	433	109
Noise CF 12 dB	8 ohms 4 ohms	6.1 7.8	0.95 0.96	1300 1700	1000 1200	300 500	1024 1706	258 430
Noise CF 9 dB	8 ohms 4 ohms	11.6 8.2	0.98 0.97	2550 1800	2000 1300	550 500	1876 1706	473 430
Noise CF 6 dB	8 ohms 4 ohms	13 8.8	0.99 0.98	2900 1950	2300 1400	600 550	2047 1876	516 473
Sine wave max. 1 s	8 ohms 4 ohms	16.6 16.5	- -	- -	- -	- -	- -	- -

208 VAC / 60 Hz / 0.5 Ω Source impedance - all channels driven								
State	**Load [ohms]**	**Mains current [A RMS]**	**Power factor**	**Input power [W]**	**Output power [W]**	**Power loss [W]**	**BTU/hr**	**kCal/hr**
Off	-	0.26	0.02	1.3	-	1.3	4	1
Standby	-	0.28	0.20	11.9	-	11.9	41	10
Standby/Wake on Audio	-	0.32	0.32	20.8	-	20.8	71	18
ReadyStandby	-	0.46	0.53	50.2	-	50.2	171	43
Eco	-	0.86	0.54	97	-	97	331	83
Idling	-	0.82	0.74	126	-	126	430	108
Noise CF 12 dB	8 ohms 4 ohms	6.8 8.8	0.96 0.96	1350 1750	1000 1200	350 550	1194 1876	301 473
Noise CF 9 dB	8 ohms 4 ohms	13.1 9.2	0.98 0.98	2600 1850	2000 1300	600 550	2047 1876	516 473
Noise CF 6 dB	8 ohms 4 ohms	13.7 9.9	0.99 0.98	2750 2000	2100 1400	650 600	2218 2047	559 516
Sine wave max. 1 s	8 ohms 4 ohms	18.4 18.4	- -	- -	- -	- -	- -	- -

120 VAC / 60 Hz / 0.2 Ω Source impedance - all channels driven								
State	**Load [ohms]**	**Mains current [A RMS]**	**Power factor**	**Input power [W]**	**Output power [W]**	**Power loss [W]**	**BTU/hr**	**kCal/hr**
Off	-	0.15	0.02	0.4	-	0.4	1	0.5
Standby	-	0.23	0.41	11.4	-	11.4	39	10
Standby/Wake on Audio	-	0.32	0.50	18.8	-	18.8	64	16
ReadyStandby	-	0.60	0.72	52.0	-	52.0	177	45
Eco	-	1.44	0.60	104	-	104	355	89
Idling	-	1.26	0.86	130	-	130	444	112
Noise CF 12 dB	8 ohms 4 ohms	12.1 15.9	0.96 0.96	1350 1800	1000 1200	350 600	1194 2047	301 516
Noise CF 9 dB	8 ohms 4 ohms	18.8 16.6	0.98 0.98	2100 1900	1600 1300	500 600	1706 2047	430 516
Noise CF 6 dB	8 ohms 4 ohms	19.7 17.7	0.99 0.98	2250 2000	1650 1400	600 600	2047 2047	516 516
Sine wave max. 1 s	8 ohms 4 ohms	25.2 27.7	- -	- -	- -	- -	- -	- -

100 VAC / 60 Hz / 0.2 Ω Source impedance - all channels driven								
State	**Load [ohms]**	**Mains current [A RMS]**	**Power factor**	**Input power [W]**	**Output power [W]**	**Power loss [W]**	**BTU/hr**	**kCal/hr**
Off	-	0.13	0.02	0.3	-	0.3	1	0.5
Standby	-	0.21	0.49	10.3	-	10.3	35	9
Standby/Wake on Audio	-	0.34	0.55	18.7	-	18.7	64	16
ReadyStandby	-	0.65	0.75	48.2	-	48.2	164	41
Eco	-	1.54	0.61	94.8	-	94.8	323	82
Idling	-	1.45	0.88	128	-	128	437	110
Noise CF 12 dB	8 ohms 4 ohms	14.9 19.9	0.97 0.96	1400 1850	1000 1200	400 650	1365 2218	344 559
Noise CF 9 dB	8 ohms 4 ohms	21.2 20.8	0.98 0.98	2000 1950	1450 1300	550 650	1876 2218	473 559
Noise CF 6 dB	8 ohms 4 ohms	21.0 21.1	0.99 0.99	2000 2000	1450 1350	550 650	1876 2218	473 559
Sine wave max. 1 s	8 ohms 4 ohms	30.3 32.7	- -	- -	- -	- -	- -	- -

4.1 Connections



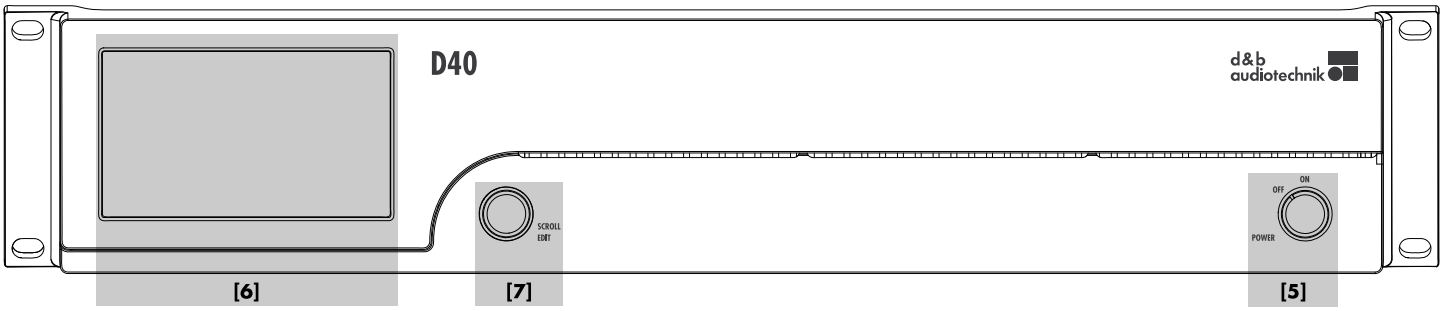
[1] Mains connector socket.
Refer to ⇒ Chapter 5.2.1 "Mains connection" on page 15.

[3] Output connector panel.
Refer to ⇒ Chapter 5.2.3 "SPEAKER OUTPUTS" on page 17.

[2] Audio INPUT (analog/digital) and LINK connectors.
Refer to ⇒ Chapter 5.2.2 "Audio input and output connectors" on page 16.

[4] Network (PRI/SEC).
Refer to ⇒ Chapter 5.2.4 "Network connections (PRI/SEC)" on page 18.

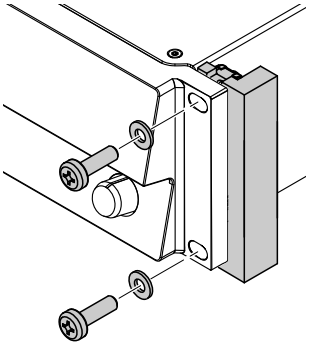
4.2 Controls and indicators - User interface

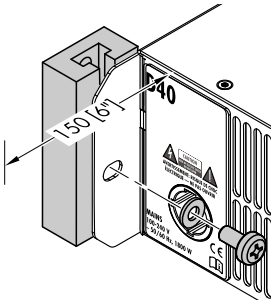


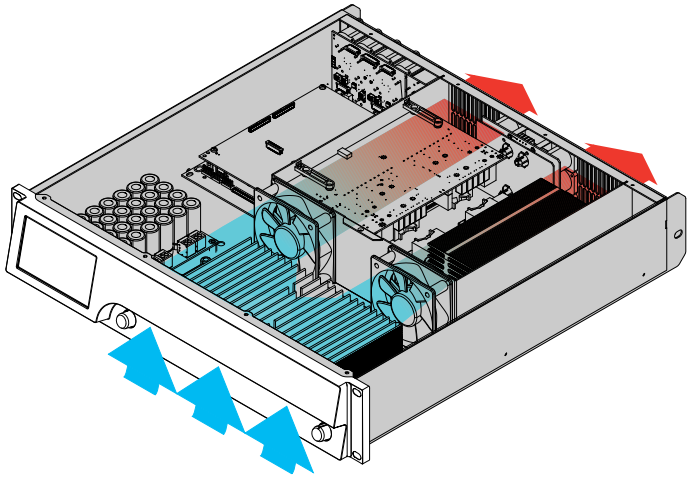
[6] TFT color touchscreen
4.3" / 480 x 272 pixels.

[7] Rotary encoder SCROLL/EDIT.
Refer to ⇒ Chapter 5.3 "Controls and indicators" on page 19 and .⇒ Chapter 5.3.2 "TFT color touchscreen - User interface" on page 19

[5] Mains power switch.
Refer to ⇒ Chapter 5.3 "Controls and indicators" on page 19, following ⇒ Chapter 5.3.1 "Mains power switch" on page 19.







5.1 Rack mounting and cooling

Rack mounting

The enclosure is designed to fit standard 19" equipment racks or cabinets.

NOTICE!

When mounting the device into 19" equipment racks or cabinets, it is strongly recommended that you:

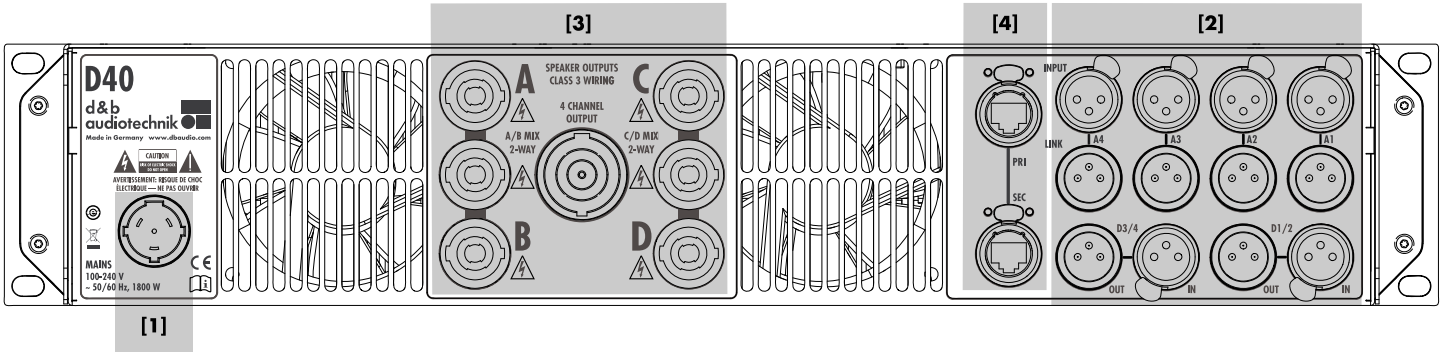
- **Always** fix the device at its **front AND rear-mounted rack ears** using appropriate rack mounting screws and U washers, as shown in the graphic opposite.
- Alternatively use shelves fixed to the inner sides of the equipment rack or cabinet.

Cooling

Thermal conditions are a vital factor to ensure operational safety of the power amplifiers. The amplifiers are equipped with two internal fans that draw cool air from the front into the housing and channel the warm air towards the back of the device.

- Please ensure that adequate cool airflow is provided.
- Do not block or cover the front panel air intake or the vents on the rear panel.
- If the amplifiers are installed in sealed cabinets (e.g. in fixed installations), use additional fan modules with filters that can be easily replaced without opening the sealed cabinets.
- Do not combine the amplifiers with D6 or D12 amplifiers in one rack.
- Do not rack up the amplifiers together with other devices producing additional heat with opposing airflow.

5.2 Connections

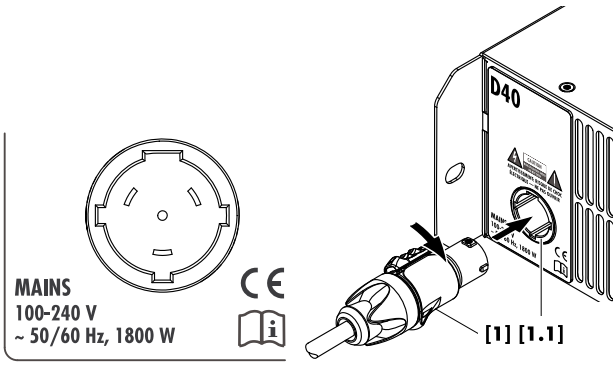


5.2.1 Mains connection

WARNING!
Potential risk of electric shock or fire.

The device is a protective class 1 unit. A missing earth (ground) contact may cause dangerous voltages in the housing and controls and may lead to electric shock.

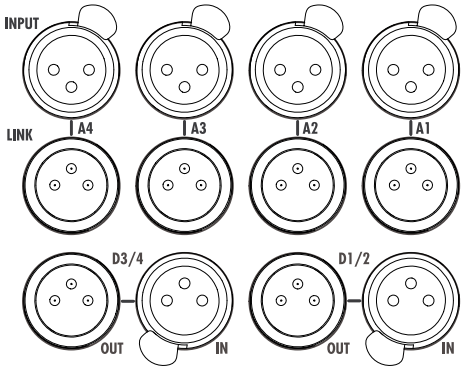
- Connect the device to mains power supplies with protective earth only.
- If there is any sign of obvious damage to the power cord and/or mains plug, do not use the power cord and replace it before further use.
- Please ensure the mains connector is accessible at any time to disconnect the device in case of malfunction or danger.
  If the mains plug is not readily accessible due to mounting in a 19" rack, then the mains plug for the entire rack must be readily accessible.
- Do not connect or disconnect the mains plug under load.



Before connecting the device to mains voltage, check that the mains voltage and frequency correspond to the specifications on the rating label next to the mains connector socket on the rear panel of the unit.

Mains voltage range:
100 to 240 VAC, ~50/60 Hz, 1800 W.

A powerCON® TRUE 1 TOP mains connector socket **[1]** is fitted on the rear panel and an appropriate power cord **[1.1]** is supplied.

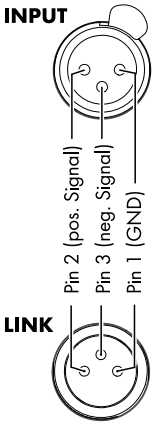


5.2.2 Audio input and output connectors

The rear panel features eight audio input connectors with the following assignments:

- four analog inputs (A1 - A4) with corresponding link outputs.
- two digital AES3 inputs (D1/2 and D3/4 - four channels) with corresponding outputs.

Each input channel can be routed to any of the output channels A to D ⇒ Input routing.

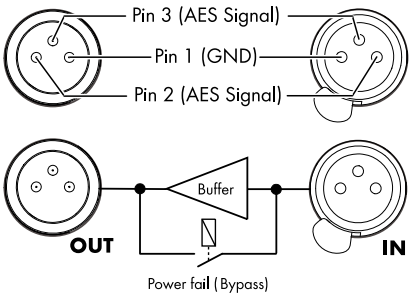


Analog INPUT and LINK (A1 - A4)

A 3-pin female XLR input connector is provided for each channel. Wired in parallel is a 3-pin male XLR input link connector used to feed the input signal onto the next device in the signal chain.

Specifications

Pin assignment ..... 1 = GND, 2 = pos., 3 = neg.
Input impedance ..... 32 kOhms, electronically balanced
CMRR @ 100 Hz/1 kHz / 10 kHz ..... >80 / >80 / >70 dB
Maximum input level (balanced/unbalanced) ..... +25 / +18 dBu
..... +27.3 dBu @ 0 dBFS
LINK (A1 - A4) ..... 3 pin XLR male
..... parallel to input



Digital input and output (IN/OUT - D1/2 - D3/4)

Two 3-pin female XLR digital input (IN) connectors (D1/2 and D3/4) are provided, each accepting a 2-channel AES (AES3) digital audio signal.

The corresponding 3-pin XLR male digital output (OUT) can be used to feed a refreshed input signal to the next device in the signal chain. The signal shape (the rising and falling edges of the signal) and level are refreshed using a latency free analog buffer amplifier.

A power fail relay is incorporated to prevent interruption of the signal chain should there be a power failure. In this situation, the digital input signal bypasses the analog buffer amplifier and is routed directly to the output (OUT).

Specifications

Pin assignment ..... 1 = GND, 2 = AES Signal, 3 = AES Signal
Input impedance ..... 110 ohms, transformer balanced
Sampling frequency ..... 44.1 | 48 | 96 | 192 kHz
Word length ..... 16 - 24 bit
OUT (D1/2 - D3/4) ..... 3-pin XLR male
..... electronically balanced
..... analog signal buffering (refresh)
..... Power Fail Relay (Bypass)

5.2.3 SPEAKER OUTPUTS

WARNING!
Potential risk of electric shock.

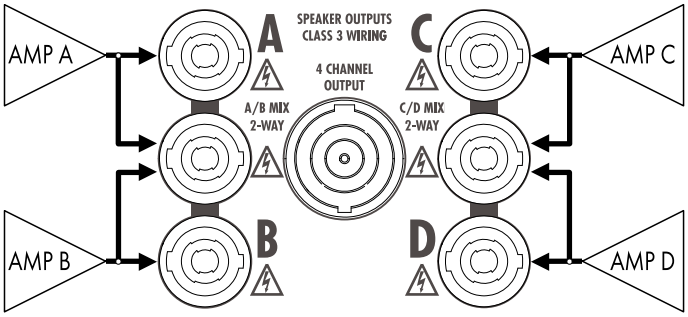
The amplifier output pins can carry dangerous voltages.

- Only use isolated loudspeaker cables with correctly fitted connectors.
- Never connect an amplifier output pin to any other input or output connector pin or protective earth (ground).

The amplifier is supplied with four NL4 output connectors (A/B/C/D) one for each amplifier output channel ⇒ Dual Channel configuration.

In addition, two NL4 connectors are provided, one for each pair of amplifier output channels to allow either Mix TOP/SUB (A/B MIX, C/D MIX) or 2-Way Active (2-WAY/2-Way) configurations.

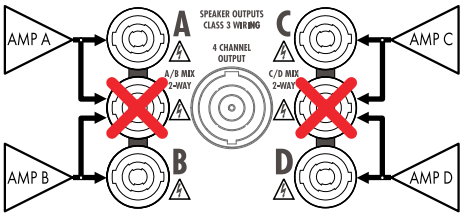
All NL4 connector pins are hardwired and permanently driven using the following pin assignments:



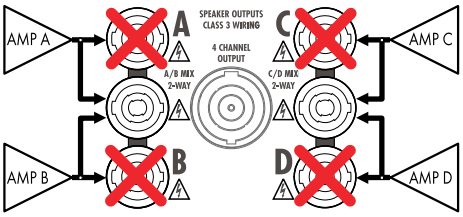
SPEAKER OUTPUTS pin assignments

AMP	SPEAKER OUTPUTS					
	A	B	A/B	C	D	C/D
A	1+/1- 2+/2-		1+/1-			
B		1+/1- 2+/2-	2+/2-			
C				1+/1- 2+/2-		1+/1-
D					1+/1- 2+/2-	2+/2-

Output modes and connector assignments - exemplary

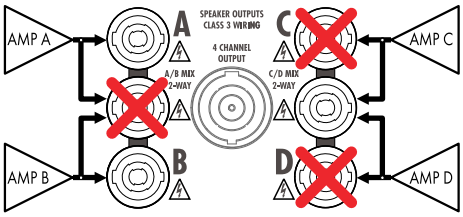


Dual Channel - Dual Channel
A/B - C/D



Mix TOP/SUB - Mix TOP/SUB
A/B MIX - C/D MIX
or...

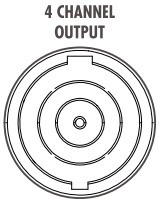
2-Way Active - 2-Way Active
2-WAY - 2-WAY



Dual Channel - Mix TOP/SUB
A/B - C/D MIX
or...

Dual Channel - 2-Way Active
A/B - 2-WAY

Note: A detailed description of the applicable output modes is given in the D40 Reference manual which can be downloaded from the related product page at www.dbaudio.com.
For further information regarding the applicable output modes for each loudspeaker system, please refer to the relevant loudspeaker manual.



4 CHANNEL OUTPUT

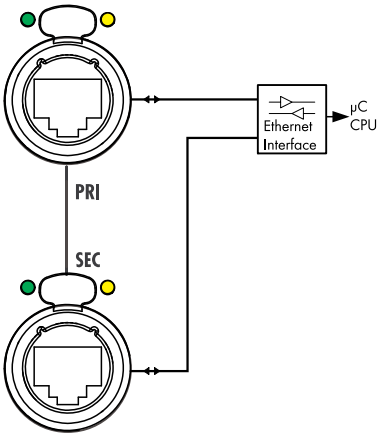
NOTICE!

The 4 CHANNEL OUTPUT connector is only intended as an interface to a rack panel or to loudspeaker multicores and breakout adapters.

Do not connect any loudspeaker cabinet, neither passive nor active systems, to this connector, otherwise there is a risk of damaging the loudspeaker components or the amplifier.

The centered NL8 connector carries the output signals of all four amplifier channels with the following pin assignment:

1+/– = Channel A pos. / neg.	2+/– = Channel B pos. / neg.
3+/– = Channel C pos. / neg.	4+/– = Channel D pos. / neg.



5.2.4 Network connections (PRI/SEC)

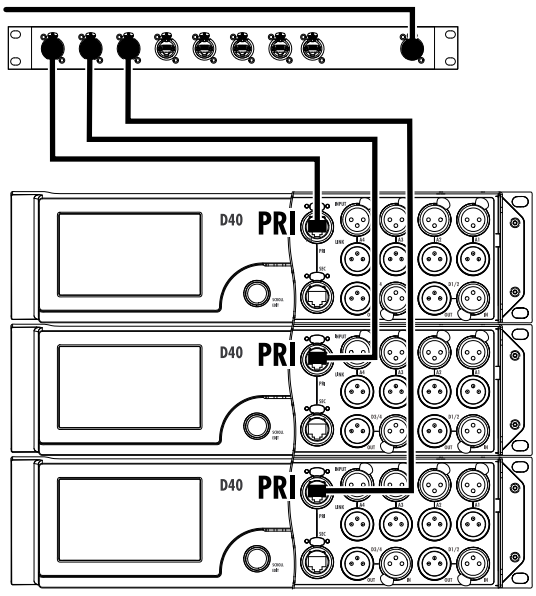
NOTICE!

Only **shielded network** cables (**STP**) must be used!

The device allows standard remote control via the d&b Remote network using the d&b R1 Remote control software or the integrated Web remote interface.
For this purpose, use the upper RJ45 (**PRI**) connector socket (1 Gbit/s/100 Mbit/s – peer-to-peer) requiring star topology network wiring. Daisy-chaining is not supported.

> **Note:** The bottom RJ45 connector socket (**SEC**) is not enabled but is reserved for future feature implementations.

Gbit Ethernet

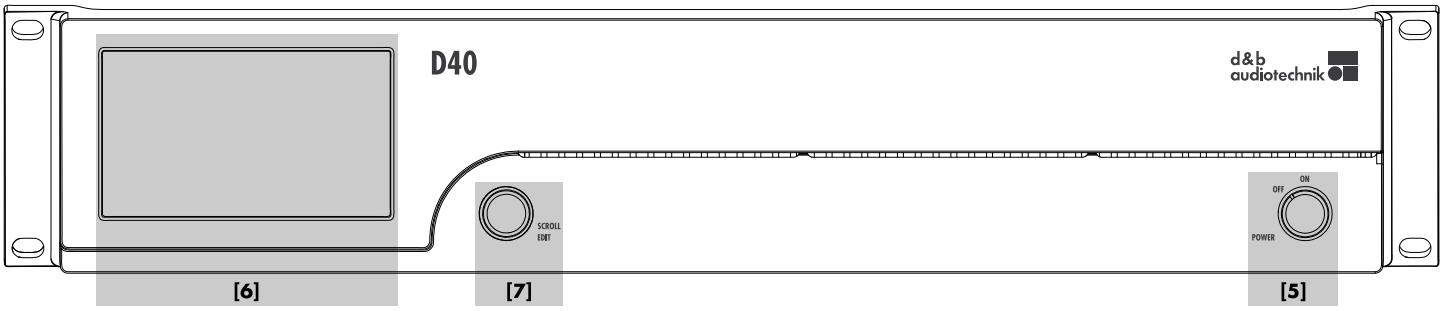


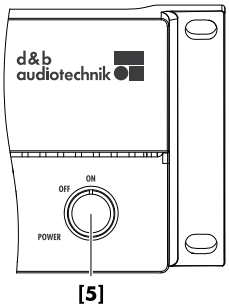
LED indicators
The two LED indicators above the respective connector in use indicate the following states:

Green Illuminates permanently when the device is connected to an active network and flashes as long as a data stream is transmitted.

Yellow
- Is off when the speed is 100 Mbit/s.
- Illuminates permanently when the speed is 1 Gbit/s.

5.3 Controls and indicators



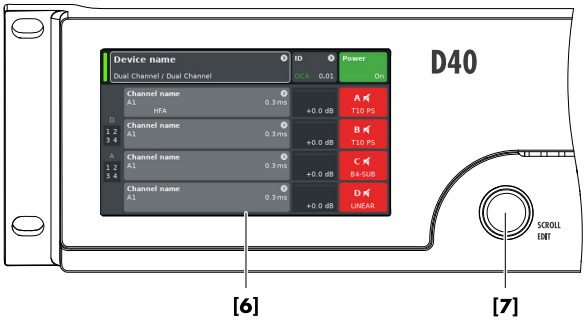


5.3.1 Mains power switch

The on/off rotary switch **[5]** is located on the bottom right of the front panel.

OFF Mains isolation is not provided. The internal power supplies are off but remain connected to the mains.

ON The unit is switched on and ready for operation.



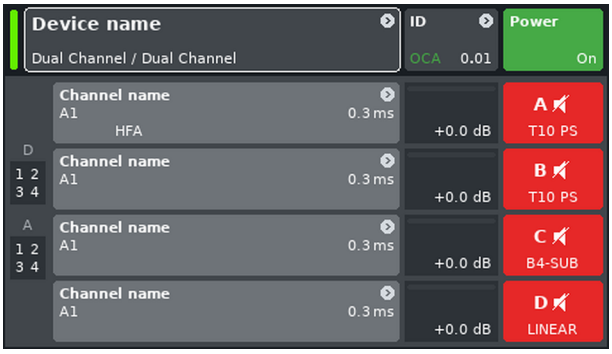
5.3.2 TFT color touchscreen - User interface

NOTICE!

The touch panel utilizes a thin flexible sheet that may be damaged by sharp objects or heavy treatment.

The user interface consists of a 4.3" TFT color touchscreen **[6]** with a resolution of 480 x 272 pixels and an additional digital rotary encoder **[7]**.

The resistive touchscreen responds to pressure and therefore can be operated by a fingertip, even when wearing gloves or by an appropriate stylus tip (pen).



5.3.2.1 Operating concept

Home screen

From the Home screen, the menu structure of the operating software is divided into two main axes, the «Device» setup and the «Channel» setup.

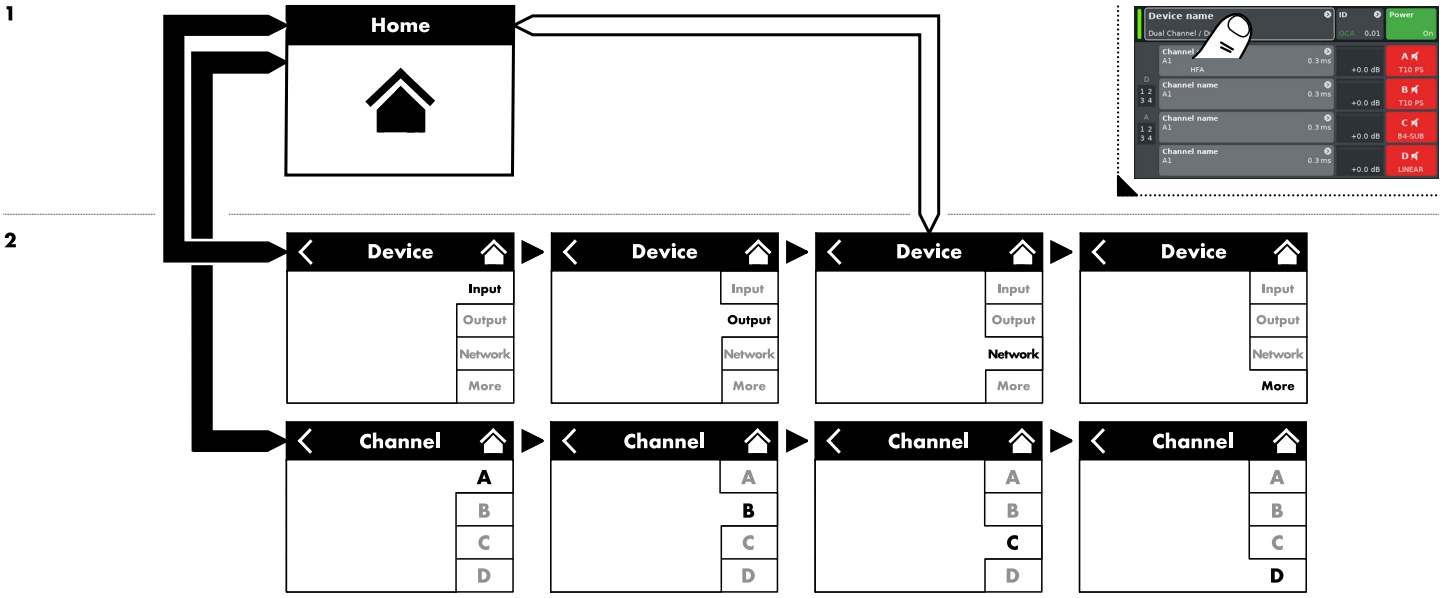
The navigation buttons allow for direct vertical access to the specific submenus while the tab structure on the right side of each submenu provides a clear horizontal order.

In addition, the Home screen gives direct access to the Network subscreen.

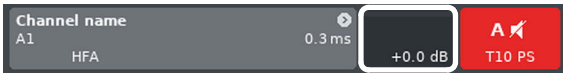
The Home screen can be accessed from any screen or menu at any level using the Home button ( ).

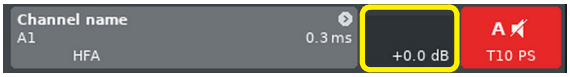
Home screen access chart

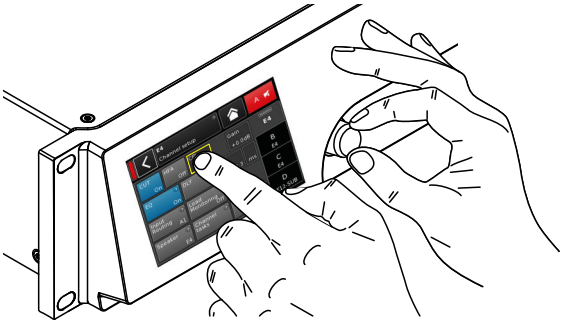
Hierarchy level

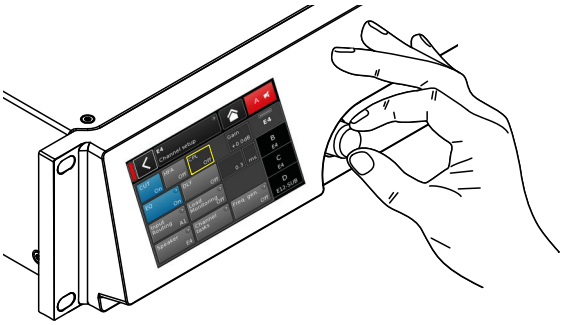


A detailed description of the «Device» and «Channel» setup menu structure and screen contents is given in the D40 Reference manual, which can be downloaded from the related product page at www.dbaudio.com.





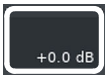




Cursor conventions

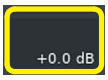
The graphical user interface features two types of cursors, the «Position» and the «Edit» cursors.

Position cursor



The Position cursor marks the selected menu item by a white frame. Depending on the type of screen item, the Position cursor allows you to either activate a function, navigate through the menu or enter Edit mode ⇒ Edit cursor.

Edit cursor



In Edit mode, the Edit cursor is marked by a yellow frame. Turning the encoder to the right (clockwise) increases the current value, turning the encoder to the left (counterclockwise) decreases it.

To leave Edit mode press the encoder or simply select the respective menu item again. The color of the frame will change from yellow back to white again ⇒ Position cursor.

Interaction

The operating concept allows different methods of interaction and configuration.

Touchscreen in combination with the rotary encoder

This method may preferably be used to set values of input fields such as Gain settings, CPL, Delay or EQ settings.

- Select menus, menu items and/or function elements by selecting the relevant item.
- Enter/edit values by turning the encoder.
- Confirm entered/changed values by selecting the respective item again or the confirmation button («OK») or pushing the encoder.

Rotary encoder only

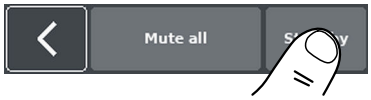
This method is mainly intended for users who are familiar with the user interfaces of other d&b amplifiers.

- Select menus, menu items and/or function elements by turning the encoder to move the Position cursor to the relevant item.
- Access the selected item or function element by pushing the encoder.
- Enter/edit values by turning the encoder.
- Confirm entered/changed values or leave Edit mode by pushing the encoder.

5.3.2.2 Standby mode

To switch the device to Standby mode, proceed as follows:

1. Select the «Power» button on the top right of the home screen.
   ↳ A dialog appears allowing you to either select the Back button (- Cancel), «Mute all» or «Standby».



2. Select «Standby».
   ↳ When the device is in Standby mode, both the «Power» button on the right and the green Power on indicator on the left are switched off. In addition, on the «Device view» button, Standby flashes alternating with the Device name.

   In Standby mode, the user interface of the device is still operable.

   The operating state (Standby mode) is stored when the «Power» button is set to 'Off' and is restored when the «Power» button is set back to 'On' again.

   In Standby mode, the main power supply and the power amplifiers are switched off to save energy. The display and controls remain active to allow repowering of the device by remote control or by selecting the «Power» button on the Home screen.

3. To repower the device, select the «Power» button again.

Notes on Standby

When the device is set to Standby (or the mains power is switched off), the movement of the loudspeaker cones in the connected cabinets is no longer damped by the power amplifier output. This removal of the damping makes them susceptible to excitation by other loudspeakers in the surroundings. Audible resonances may occur, and even absorption of low frequency sound energy as the undamped loudspeakers act like a "bass trap".

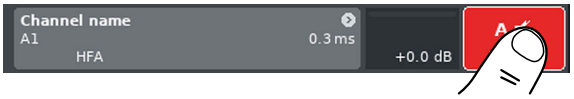
To permanently mute single subwoofer cabinets while others are operated at the same time it is therefore preferable to use the Mute function instead of Standby. However, the Standby mode can be useful with mid/high systems as it removes any residual noise from the system.

5.3.2.3 Mute functions

The device provides two mute functions:

- Individual mute buttons for each channel or pair of channels, depending on the output mode configuration:
  ⇒ Channel mute,
- Master mute function:
  ⇒ «Mute all».

Note: The device stores the setting of the mute buttons when the mains power is switched off or disconnected. When the unit is switched on or reconnected, the mute status will be recalled.



Channel mute

⇒ To mute or unmute a channel or a pair of channels, simply select the respective Channel mute button.

↳ The Channel mute button displays the mute status of the relevant channel or pair of channels and the loudspeaker setup loaded.

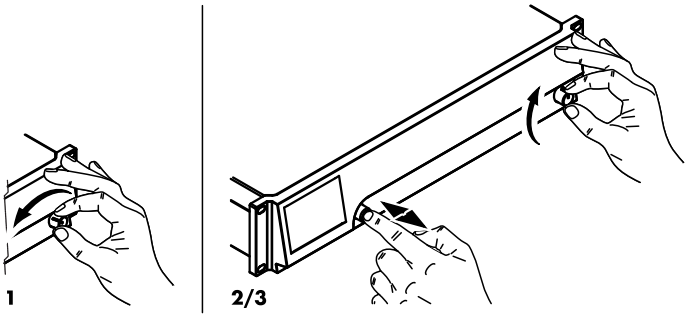
Channel muted

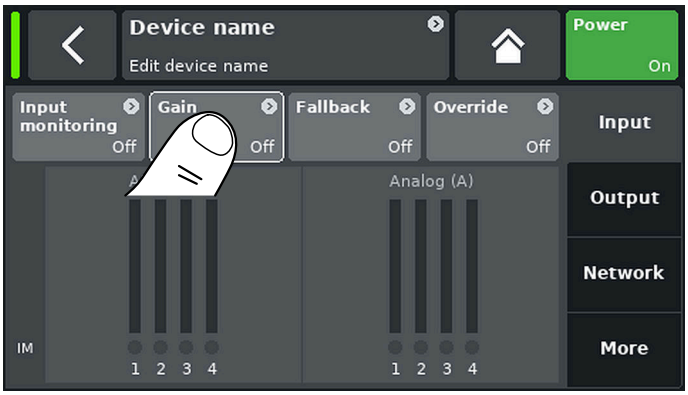
Channel unmuted

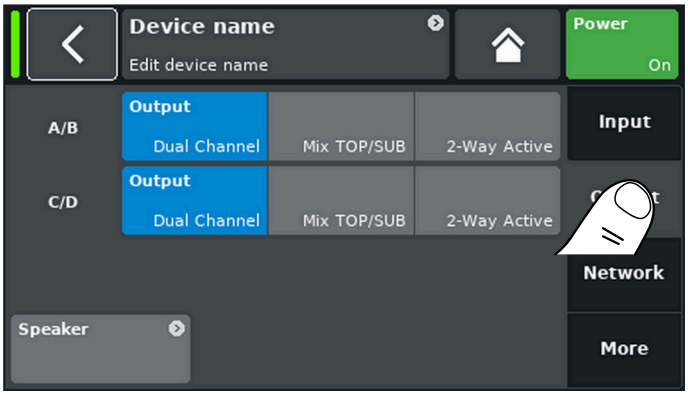
Master mute («Mute all»)

1. To mute all channels simultaneously, select the «Power» button on the top right of the Home screen.
   ↳ A dialog appears allowing you to either select the Back button (- cancel), «Mute all» or «Standby».
2. Select «Mute all».

3. To unmute the channels, use the individual Channel mute buttons.







Due to the vast functional range and possible settings of the device, this section is intended as a quick reference to provide you with a systematic procedure for defining the basic settings of the device.
It is advisable to start with the device settings followed by the individual channel settings.

1. System reset

Before starting to define the basic settings, perform a system reset. For this purpose, proceed as follows:

1. Switch off the device.
2. Press and hold the encoder and repower the device.
   ↳ Long confirmation beep.
3. Release the encoder and briefly press the encoder again within 2 sec.
   ↳ Short confirmation beep.
   The device will boot up and will switch to the Home screen. A corresponding message will be issued:

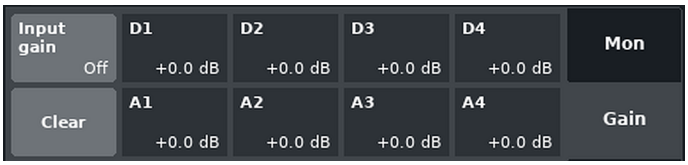
   All device settings have been cleared

2. Device setup

⇒ On the Home screen, select the Device view button.
↳ This will enter the Device setup subscreen with the «Input» tab being active.

3. Input

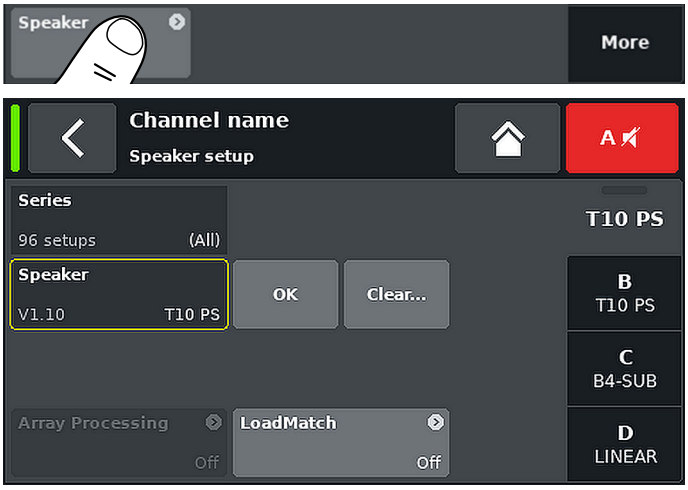
⇒ Define your desired input settings for all channels correspondingly.
↳ Here you can also set the input gain of the individual channel, ranging from –57.5 to +6 dB.



Shiftable input gain

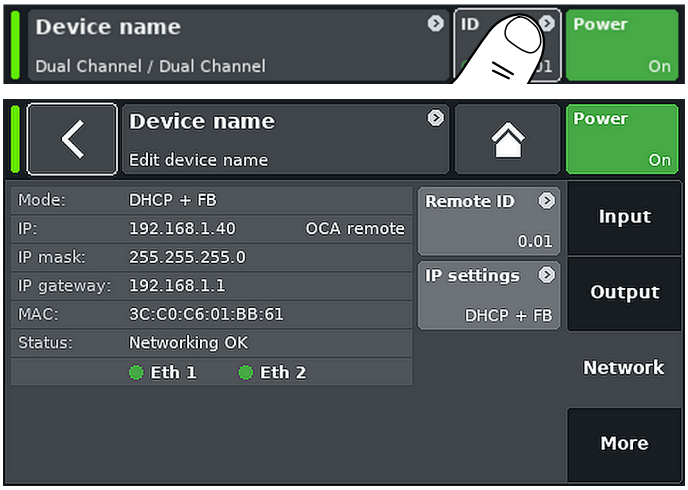
4. Output (Output mode)

⇒ Select the «Output» tab and define your desired output mode settings for each pair of amplifier channels correspondingly.



5. Speaker

1. On the bottom left of the «Output» tab, select the «Speaker» navigation button to enter the Speaker setup subscreen.
2. Choose the desired speaker setups for all channels and confirm each selected setup by selecting the «OK» button right next to the «Speaker» selection field.
3. Define the «LoadMatch» settings, if applicable and desired, correspondingly.
4. After defining all settings, exit the subscreen by selecting the Home button (⌂).



6. Network

1. On the Home screen, select the «ID» button to enter the Network setup menu.
2. Define your desired Network settings correspondingly.
   ↳ **Note:** As all the configurations and settings mentioned above can also be defined remotely, it depends on how you wish to proceed whether defining the Network settings is the last or the first step when configuring your basic settings.
3. After defining all settings, exit the subscreen by selecting the Home button (⌂) and carry on with the individual channel settings.

7. Channel setup

1. On the Home screen, select the Channel view button of the first channel (A) or pair of channels (A/B) to enter the Channel setup.
2. Define your individual channel settings such as CUT, HFA, CPL, Level, DLY or EQ as well as the input routing for all channels correspondingly.

Input routing

3. After defining all settings, exit the subscreen by selecting the Home button (⌂).

7.1 Service

CAUTION!
Potential risk of explosion.

The device incorporates a lithium battery which may cause danger of explosion if not replaced correctly.

Refer replacement only to qualified service personnel authorized by d&b audiotechnik.

Do not open the device. No user serviceable parts inside. In case of any damage do not operate the device under any circumstances.

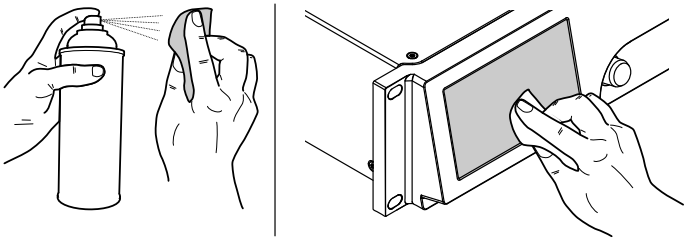
Refer servicing only to qualified service personnel authorized by d&b audiotechnik. In particular if:

- objects or liquids have entered the device.
- the device does not operate normally.
- the device was dropped or the housing is damaged.

7.2 Maintenance and care

During normal operation, the amplifier provides maintenance-free service.

Due to the cooling concept, no dust filters are required. As a result, filter exchange or cleaning the filters is not necessary.



7.2.1 Touchscreen cleaning

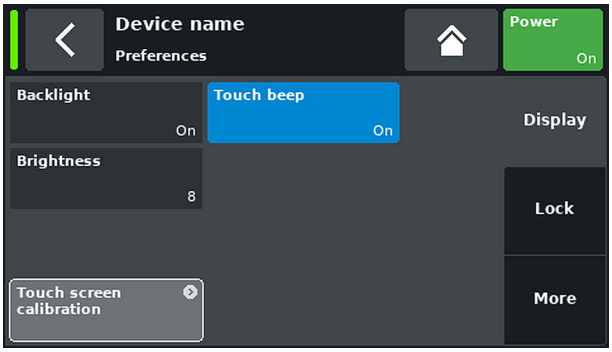
After a certain period of time, the touchscreen may require cleaning.

For this purpose, proceed as follows:

- Use a soft cloth only.
- Do not use any solvent cleaners.

To remove very heavy dirt from the panel, it may be helpful to use a special cleaning spray for TFT screens. In this case, proceed as follows:

1. Spray on the soft cloth before wiping the screen.
   ↳ Never apply/spray directly on the screen as the liquid could penetrate the device.
2. Wipe the screen with moderate pressure.



7.2.2 Touchscreen calibration

Indication

Due to mechanical impact or the aging process of the touchscreen, its calibration references may change.

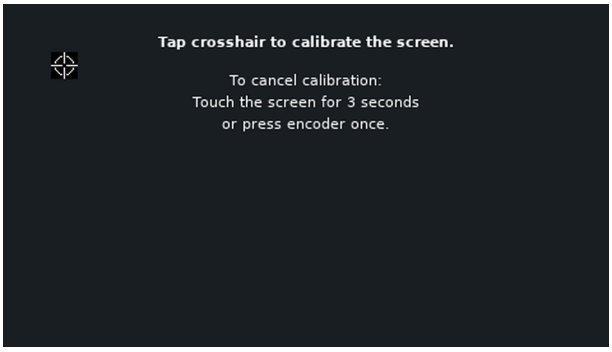
An indication is that when you tap a specific button and the adjacent button is activated instead or when a specific button does no longer work.

In such cases, the touchscreen should be recalibrated.

Calibration

To calibrate the touchscreen proceed as follows:

1. From the «Home» screen go to «Device» ⇒ «More» ⇒ «Preferences» ⇒ «Display».
2. On the bottom left, select «Touchscreen calibration».
   ↳ The calibration menu will be issued, guiding you through the calibration procedure.



3. Follow the on screen instructions respectively.

8.1 Declaration of Conformity

This declaration applies to:

d&b Z2850 D40 Amplifier

by d&b audiotechnik GmbH & Co. KG.

All product variants are included, provided they correspond to the original technical version and have not been subject to any later design or electromechanical modifications.

We herewith declare that said products are in conformity with the provisions of the respective directives including all applicable amendments.

Detailed and applicable declarations are available on request and can be ordered from d&b or downloaded from the d&b website at www.dbaudio.com.

8.2 WEEE Declaration (Disposal)

Electrical and electronic equipment must be disposed of separately from normal waste at the end of its operational lifetime.

Please dispose of this product according to the respective national regulations or contractual agreements. If there are any further questions concerning the disposal of this product, please contact d&b audiotechnik.

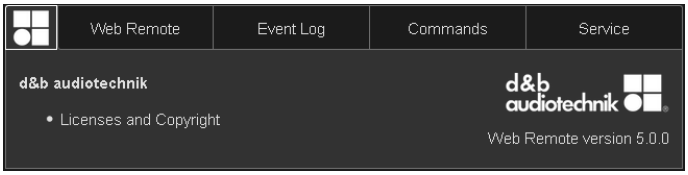
WEEE-Reg.-Nr. DE: 13421928

8.3 Licenses and Copyright

This device includes software components released under different open source licenses. These components are supplied together with the d&b firmware.

A list of the components and a full-text version of all licenses and copyrights can be accessed using the amplifier's Web Remote interface.

⇒ Selecting the d&b logo at the top left of the «Web Remote» interface page allows access to the «Licenses and Copyright» information page.



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