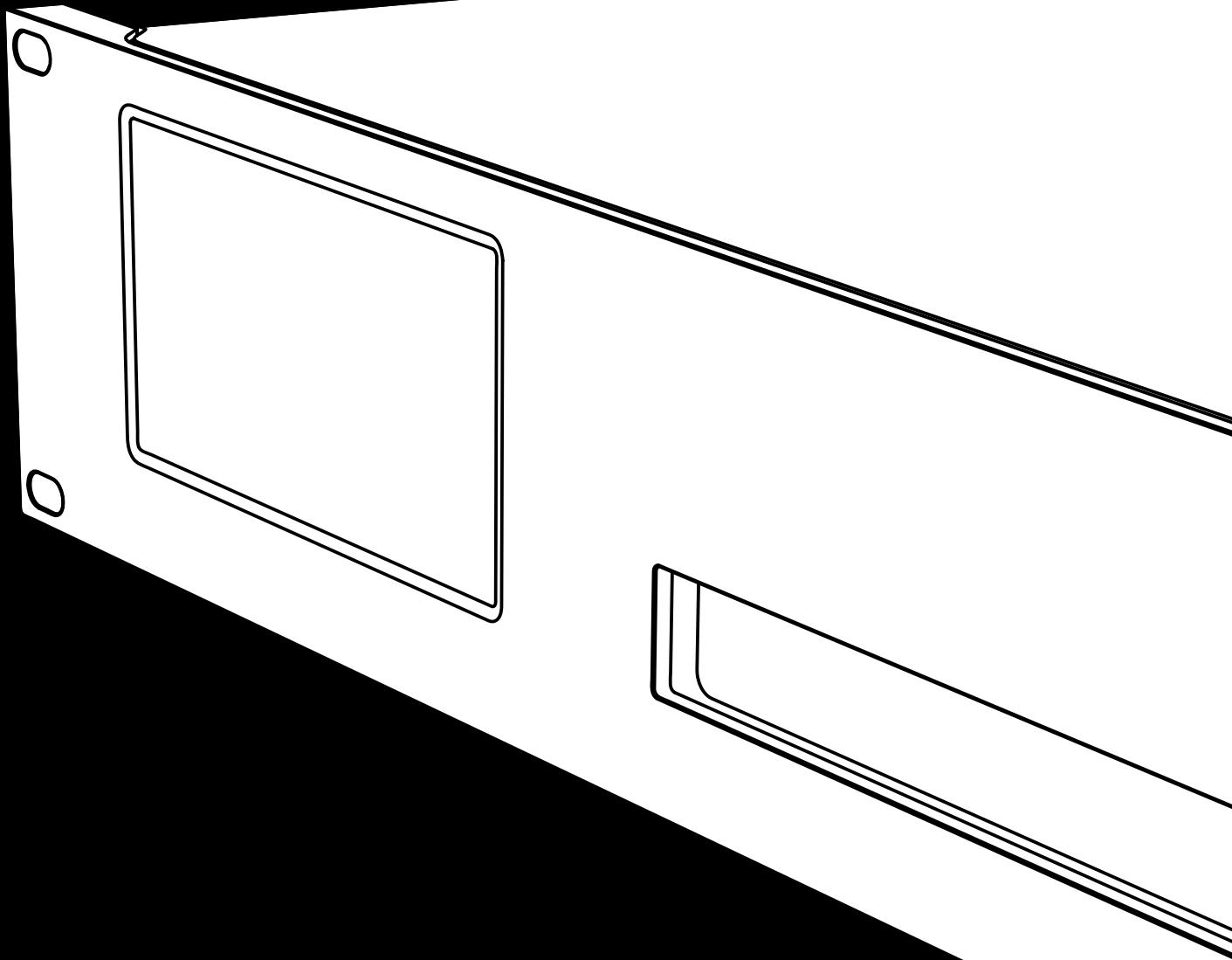


# xD

**40D**  
**Start-up manual**  
**1.6 en**



### **Notes on document version**

All previous versions of this document are hereby no longer valid.

### **Version 1.6:**

Technical specifications: A/D conversion details added.

### **Refer to:**

⇒ "Digital Signal Processing" on page 8.

### **General information**

40D Start-up manual

Version: 1.6 en, 06/2023, D2036.EN .01

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## 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.

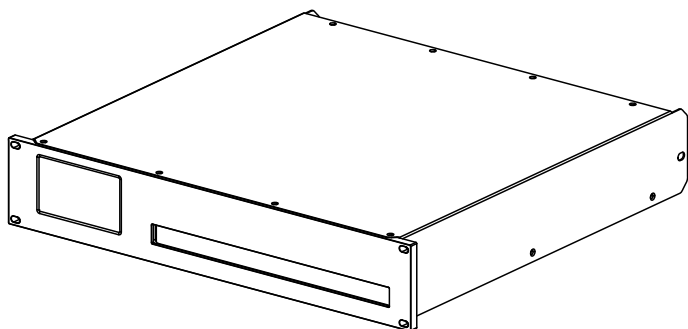


The exclamation point within a triangle is intended to alert the user to the presence of important operating and service instructions in the literature accompanying the product.

## 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.

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The d&b 40D amplifier is designed for installation purposes and intended to be used with applicable d&b loudspeakers. A LINEAR setup is available allowing the amplifier to be used as a linear installation power amplifier.

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### NOTICE!

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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 ( $\Rightarrow$  Reference manual) with comprehensive information is available for download on the related product page of the d&b website at [www.dbaudio.com](http://www.dbaudio.com).

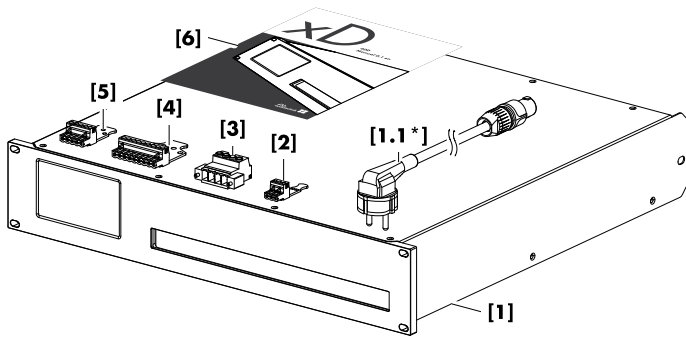
### 1.2 Loudspeaker types

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](http://www.dbaudio.com).

The minimum recommended impedance per channel is 4 ohms.

Nom. impedance	Cabinets per channel
4 $\Omega$	1
8 $\Omega$	2
12 $\Omega$	3
16 $\Omega$	4
20 $\Omega$	5

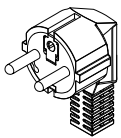
A list of d&b loudspeakers supported by the amplifier is included in the Release notes of the amplifier firmware. The latest version can be found on the d&b website at [www.dbaudio.com](http://www.dbaudio.com).



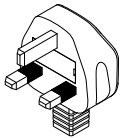
Before starting up the device, please verify the shipment for completeness and proper condition of the items.

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.

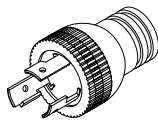
Pos.	Qty.	d&b Code	Description
[1]	1	Z2830	d&b 40D Amplifier
Including:			
[1.1*]	1	Z2612.xxx	Power cord (specific to country*)
[2]	9		3-pin Phoenix Euroblock female: <ul style="list-style-type: none"> <li>Intended for the INPUT/LINK/FAULT connector sockets.</li> <li>Connector type: MSTB 2.5 / 3-STZ - Phoenix order code: 1776168</li> </ul>
[3]	2		4-pin Phoenix Euroblock male: <ul style="list-style-type: none"> <li>Intended for the SPEAKER OUTPUTS connector sockets.</li> <li>Connector type: IPC 5/4-STF-7.62 - Phoenix order code: 1709173</li> </ul>
[4]	1		9-pin Phoenix Euroblock female: <ul style="list-style-type: none"> <li>Intended for the GPI connector socket.</li> <li>Connector type: MSTB 2.59-STZ-5.08 - Phoenix order code: 1764316</li> </ul>
[5]	1		5-pin Phoenix Euroblock female: <ul style="list-style-type: none"> <li>Intended for the GPO connector socket.</li> <li>Connector type: MSTB 2.55-STZ-5.08 - Phoenix order code: 1776142</li> </ul>
[6]	1	D2036.EN .01	d&b 40D Start-up manual.



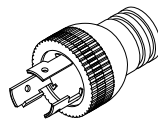
**Z2612.000**  
3-pin Schuko  
CEE 7/7



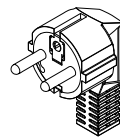
**Z2612.010**  
3-pin UK  
BS 1363A



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



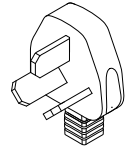
**Z2612.035**  
3-pin Japan  
NEMA L6-20P



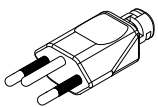
**Z2612.040**  
3-pin South Korea  
KS C8305



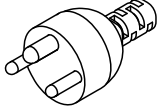
**Z2612.050**  
3-pin Australia  
AS 3112



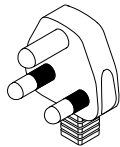
**Z2612.060**  
3-pin China  
GB 2099



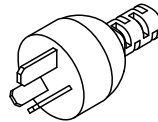
**Z2612.070**  
3-pin Switzerland  
SEV 1011



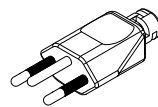
**Z2612.090**  
3-pin Denmark  
Afsnit 107-2-D1



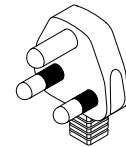
**Z2612.100**  
3-pin South Africa  
SANS 164-1



**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	..... 2 x 4-pin Phoenix Euroblock female
Maximum output voltage/current	..... 180 V <sub>peak</sub> /35 A <sub>peak</sub>
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 <sub>pk</sub> )	.....
Analog input	..... 350 μV <sub>RMS</sub> /111 dB
Analog input, A-weighting	..... 250 μV <sub>RMS</sub> /114 dB
Digital input	..... 200 μV <sub>RMS</sub> /116 dB
Digital input, A-weighting	..... 150 μV <sub>RMS</sub> /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 dB
.....	..... 4x 250 W into 8/4 Ω

#### Analog inputs and outputs

INPUT A1 - A4	.....3-pin Phoenix Euroblock male
Pin assignment	..... (↓) GND, neg., pos.
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

#### Digital inputs and outputs

INPUT - D1/2, D3/4	.....3-pin Phoenix Euroblock male, AES3
Pin assignment	.....(↓) GND, AES Signal, AES Signal
Input impedance	..... 110 Ω, transformer balanced
Sampling frequency	..... 44.1   48   96   192 kHz
Word length	..... 16 - 24 bit
LINK - D1/2, D3/4	.....3-pin Phoenix Euroblock male
Pin assignment	.....(↓) GND, AES Signal, AES Signal
.....	.....electronically balanced
Output modes	.....Mains on: analog signal buffering (refresh)
.....	.....Mains off/power fail: bypass relay

#### ETHERNET 1 (PRI)/ETHERNET 2 (SEC)

Connector type	..... 2 x RJ 45
ETHERNET 1 (PRI)	..... Remote control via R1, Star topology
ETHERNET 2 (SEC)	..... Currently disabled

#### IP settings (factory default)

IP address/Subnet mask	..... 192.168.1.40/255.255.255.0
------------------------	----------------------------------

#### GPI/GPO/FAULT

External power supply	..... 24 VDC ±25% (18 - 30 VDC)/150 W
-----------------------	---------------------------------------

<b>GPI</b>	..... 8 x Opto-coupled (galvanic isolation)
High-level	..... 18 ... 30 VDC
Low-level	..... 0 ... 9 VDC
Serial resistance	.....5.4 kOhms
Forward voltage drop (U <sub>f(max.)</sub> )	..... 3.7 V
Input current draw per pin @ 9/18/24/30 VDC	.....
.....	..... 1.5/2.6/3.7/4.8 mA

Connector type	..... 1 x 9-pin Phoenix Euroblock male
Pin assignment	..... (↓) GND, GPIs 1 - 8

<b>GPO</b>	..... 4 x Low-Side-Switch-Relay
High-state	..... Closed (connected to common GPO GND)
Low-state	..... Open (high resistive)
Max. current draw	..... 1 A/Total: 4 A
Connector type	..... 1 x 5-pin Phoenix Euroblock male
Pin assignment	..... (↓) GND, GPOs 1 - 4

<b>FAULT</b>	..... NO - Normally Open   NC - Normally Closed
.....	..... 1 x 3-pin Phoenix Euroblock male

### 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

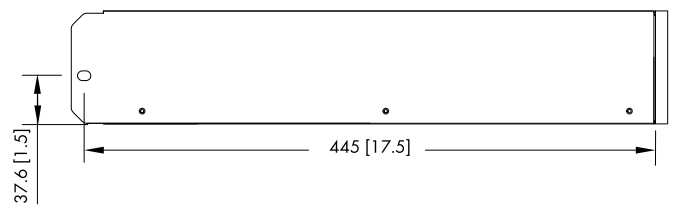
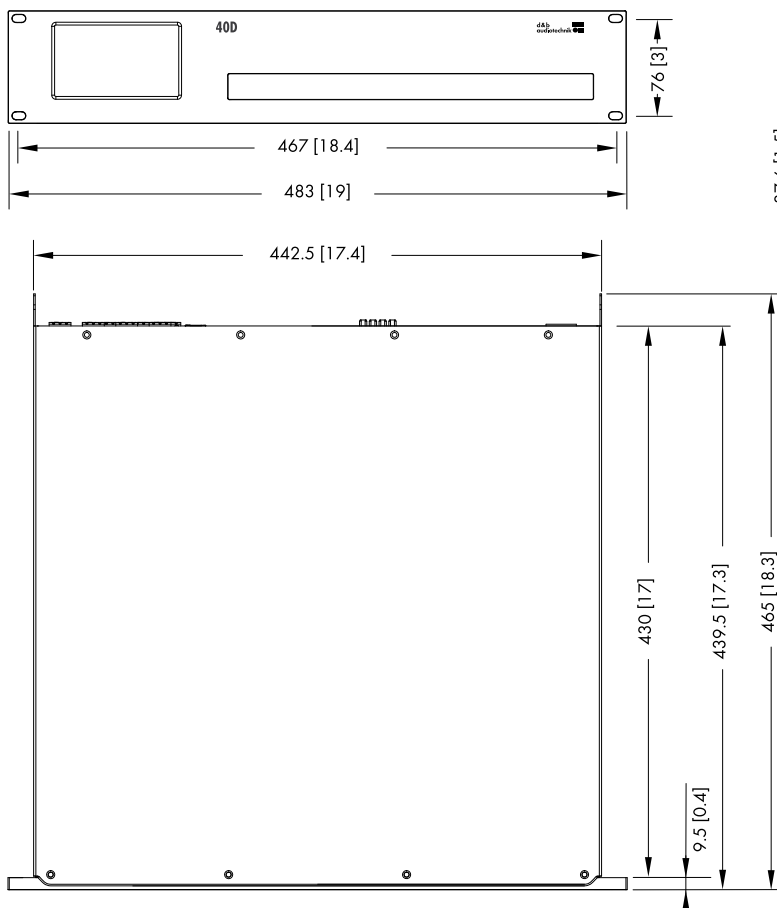
RESET .....	Recessed push-button (rear panel)
TFT color touchscreen .....	4.3"/480 x 272 pixels

### 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 .....	13.3 kg/29.3 lb



40D 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.

<b>EIA-426B noise</b>			
<b>Crest factor</b>	<b>Load</b>	<b>Power rating</b>	<b>Power average</b>
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
<b>1 kHz burst</b>			
<b>On/off time</b>	<b>Load</b>	<b>Power</b>	
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	
<b>1 kHz sine wave</b>			
<b>Channels used</b>	<b>Load</b>	<b>Max. output power</b>	<b>Duration of max. output</b>
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.

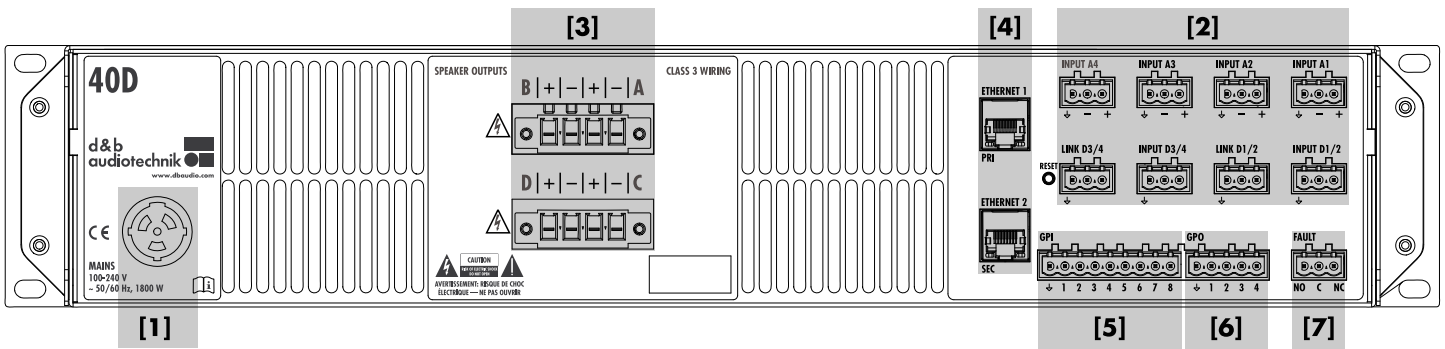
230 VAC / 50 Hz / 0.5 Ω Source impedance - all channels driven								
State	Load [ohms]	Mains current [A RMS]	Power factor	Input power [W]	Output power [W]	Power loss [W]	BTU/hr	kCal/hr
Standby	-	0.26	0.22	13.5	-	13.5	46	12
Standby/Wake on Audio	-	0.29	0.31	20.8	-	20.8	71	18
ReadyStandby	-	0.43	0.54	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	6.1	0.95	1300	1000	300	1024	258
	4 ohms	7.8	0.96	1700	1200	500	1706	430
Noise CF 9 dB	8 ohms	11.6	0.98	2550	2000	550	1876	473
	4 ohms	8.2	0.97	1800	1300	500	1706	430
Noise CF 6 dB	8 ohms	13	0.99	2900	2300	600	2047	516
	4 ohms	8.8	0.98	1950	1400	550	1876	473
Sine wave max. 1 s	8 ohms	16.6	-	-	-	-	-	-
	4 ohms	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
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	6.8	0.96	1350	1000	350	1194	301
	4 ohms	8.8	0.96	1750	1200	550	1876	473
Noise CF 9 dB	8 ohms	13.1	0.98	2600	2000	600	2047	516
	4 ohms	9.2	0.98	1850	1300	550	1876	473
Noise CF 6 dB	8 ohms	13.7	0.99	2750	2100	650	2218	559
	4 ohms	9.9	0.98	2000	1400	600	2047	516
Sine wave max. 1 s	8 ohms	18.4	-	-	-	-	-	-
	4 ohms	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
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	12.1	0.96	1350	1000	350	1194	301
	4 ohms	15.9	0.96	1800	1200	600	2047	516
Noise CF 9 dB	8 ohms	18.8	0.98	2100	1600	500	1706	430
	4 ohms	16.6	0.98	1900	1300	600	2047	516
Noise CF 6 dB	8 ohms	19.7	0.99	2250	1650	600	2047	516
	4 ohms	17.7	0.98	2000	1400	600	2047	516
Sine wave max. 1 s	8 ohms	25.2	-	-	-	-	-	-
	4 ohms	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
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	14.9	0.97	1400	1000	400	1365	344
	4 ohms	19.9	0.96	1850	1200	650	2218	559
Noise CF 9 dB	8 ohms	21.2	0.98	2000	1450	550	1876	473
	4 ohms	20.8	0.98	1950	1300	650	2218	559
Noise CF 6 dB	8 ohms	21.0	0.99	2000	1450	550	1876	473
	4 ohms	21.1	0.99	2000	1350	650	2218	559
Sine wave max. 1 s	8 ohms	30.3	-	-	-	-	-	-
	4 ohms	32.7	-	-	-	-	-	-

4.1 Connections



**[1]** Mains connector socket.  
Refer to ⇒ Chapter 5.2.1 "Mains connection" on page 14.

**[3]** Output connectors.  
Refer to ⇒ Chapter 5.2.3 "SPEAKER OUTPUTS" on page 16.

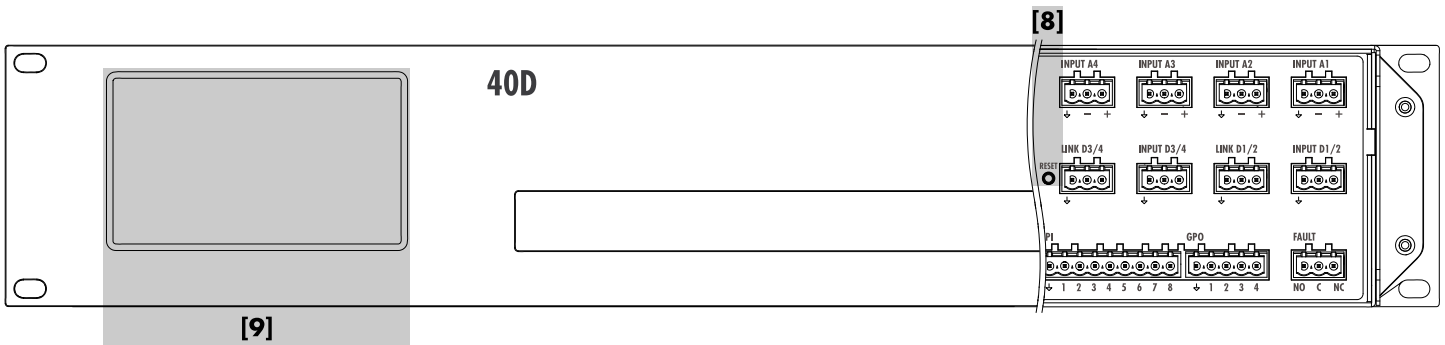
**[2]** Audio INPUT (analog/digital) and LINK connectors.  
Refer to ⇒ Chapter 5.2.2 "Audio input and output connectors" on page 15.

**[4]** ETHERNET.  
Refer to ⇒ Chapter 5.2.4 "ETHERNET (Dual Ethernet port)" on page 17.

**[5]** GPI /GPO connector.  
**[6]** Refer to ⇒ Chapter 5.2.5 "GPI/GPO (Hardware description)" on page 18.

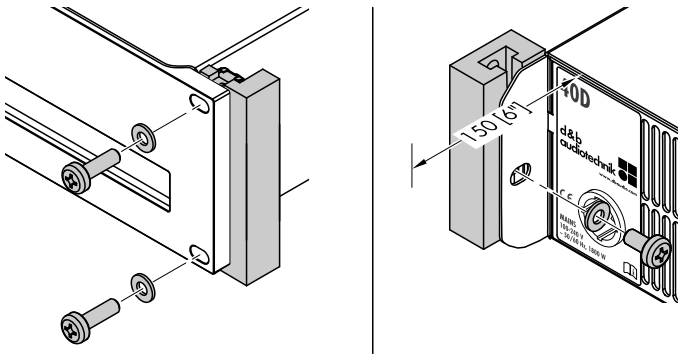
**[7]** FAULT connector.  
Refer to ⇒ Chapter 5.2.6 "FAULT" on page 18.

4.2 Controls and indicators - User interface



**[9]** User interface / Status indicators  
Refer to .

**[8]** RESET  
Refer to ⇒ Chapter 5.3.1 "RESET (System reset)" on page 19.



### 5.1 Rack mounting and cooling

#### Rack mounting

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

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#### NOTICE!

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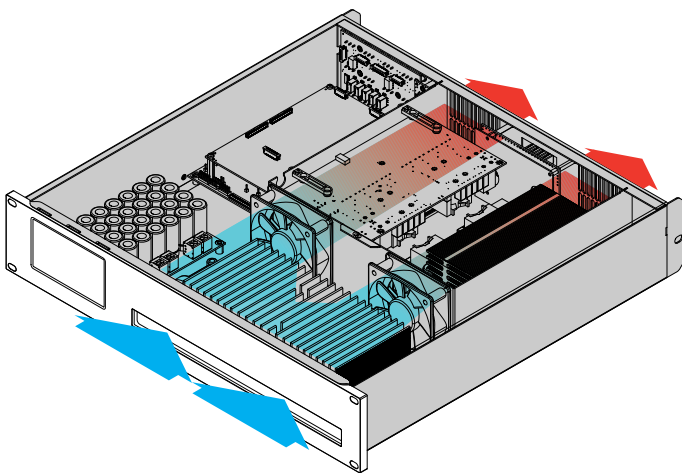
When mounting the device into 19" equipment racks or cabinets, it is strongly recommended that you:

- **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.
- 

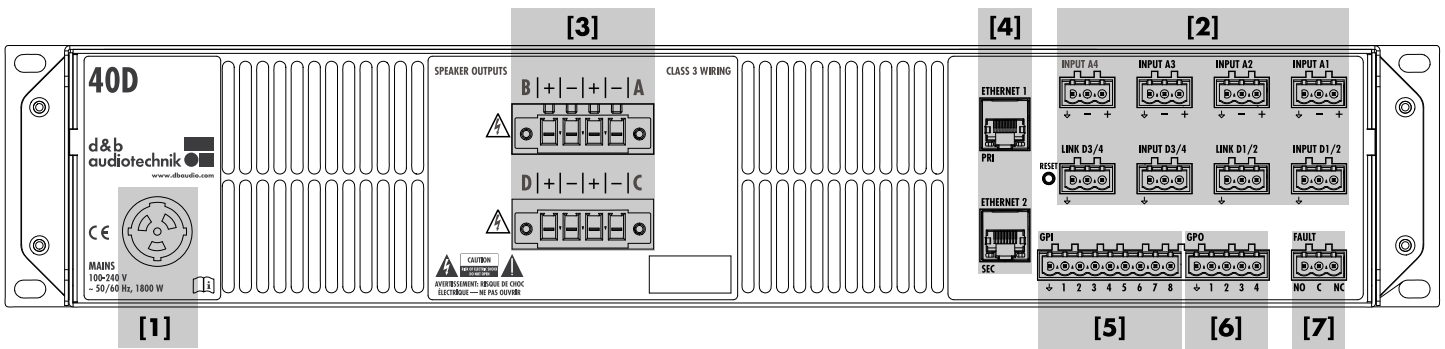
#### Cooling

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.

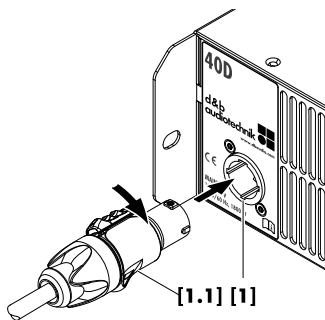
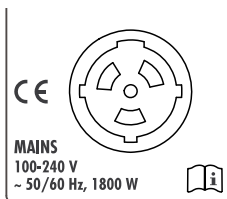
- Connect the device to mains power supplies with protective earth only.
- If there is any sign of obvious damage to the power cord and/or mains plug, do not use the power cord and replace it before further use.
- Please ensure the mains connector is accessible at any time to disconnect the device in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

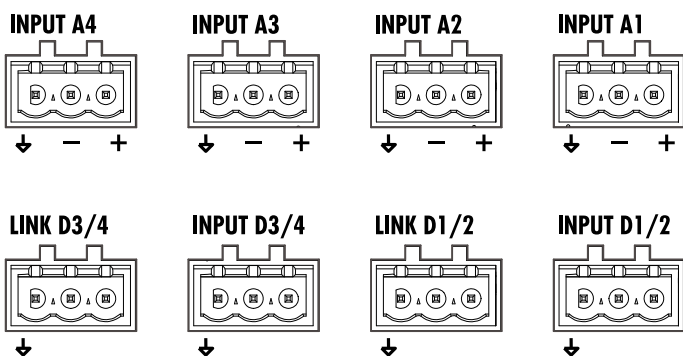
Before connecting the device to mains voltage, check that the mains voltage and frequency correspond to the specifications on the rating label next to the mains connector socket on the rear panel of the unit.

#### 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 installation specific Phoenix Euroblock connectors with the following assignments:

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

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

#### Analog INPUT (A1 - A4)

A 3-pin Phoenix Euroblock connector (male) is provided for each analog input to accept the supplied 3-pin Phoenix Euroblock connector (female). To feed (link) the input signal on to the next device in the signal chain, the connector can also be used as a cable tap.

#### Specifications

Pin assignment.....	(↓) GND, neg., pos.
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

#### Digital INPUT and LINK (D1/2 - D3/4)

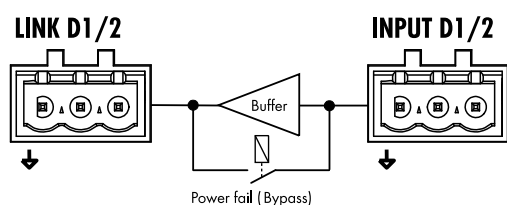
A 3-pin Phoenix Euroblock connector (male) is provided for each pair of digital inputs to accept the supplied 3-pin Phoenix Euroblock connector (female).

The corresponding digital LINK output (1/2, 3/4) 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 with an 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 LINK output.

#### Specifications

Pin assignment.....	(↓) GND, AES Signal, AES Signal
Input impedance .....	110 ohms, transformer balanced
Sampling frequency .....	44.1   48   96   192 kHz
Word length .....	16 - 24 bit
Digital LINK (D1/2, D3/4) .....	3-pin Phoenix Euroblock male
.....	electronically balanced
.....	analog signal buffering (refresh), power fail relay (Bypass)



### 5.2.3 SPEAKER OUTPUTS



#### WARNING!

Potential risk of electric shock or fire.

#### Risk of electric shock

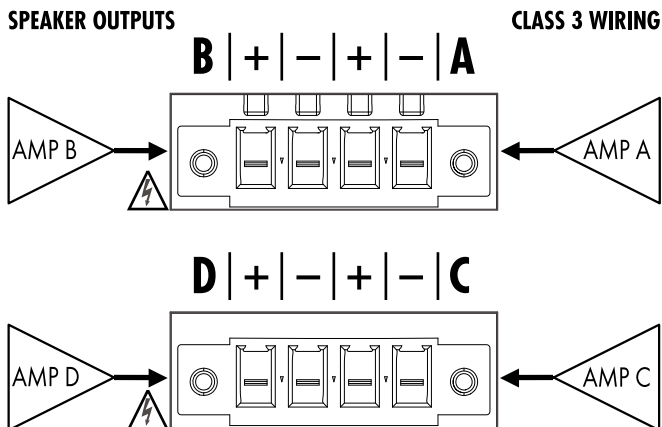
The amplifier output pins can carry dangerous voltages.

- 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).
- **Bridge mode is not applicable.**

#### Risk of fire

To avoid any heating of the output connector terminal (glowing contact), the wires need to be properly fitted to the output connector terminal.

- Only use the enclosed Phoenix Euroblock connector terminals [3].
- Observe the maximum cross-section of 6 mm<sup>2</sup> (AWG 10).
- Ensure all contact screws are properly tightened. Recommended **torque** settings (min/max): **0.7/0.8** N·m.
- Ensure the fixing screws of the connector terminal are properly fitted to the output connector socket of the device.



The amplifier is equipped with two Phoenix Euroblock connector sockets (female), one for each pair of amplifier output channels (A/B, C/D).

All pins of both output connectors are hardwired and permanently driven using the following pin assignment.

#### SPEAKER OUTPUTS A (B, C, D)

+ = Amp A (B, C, D) pos.

- = Amp A (B, C, D) neg.

**Note:** A detailed description of the applicable output modes is given in the 40D Reference manual which can be downloaded from the related product page at [www.dbaudio.com](http://www.dbaudio.com).

For further information regarding the applicable output modes for each loudspeaker system, please refer to the relevant loudspeaker manual.



## 5.2.4 ETHERNET (Dual Ethernet port)

### 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.

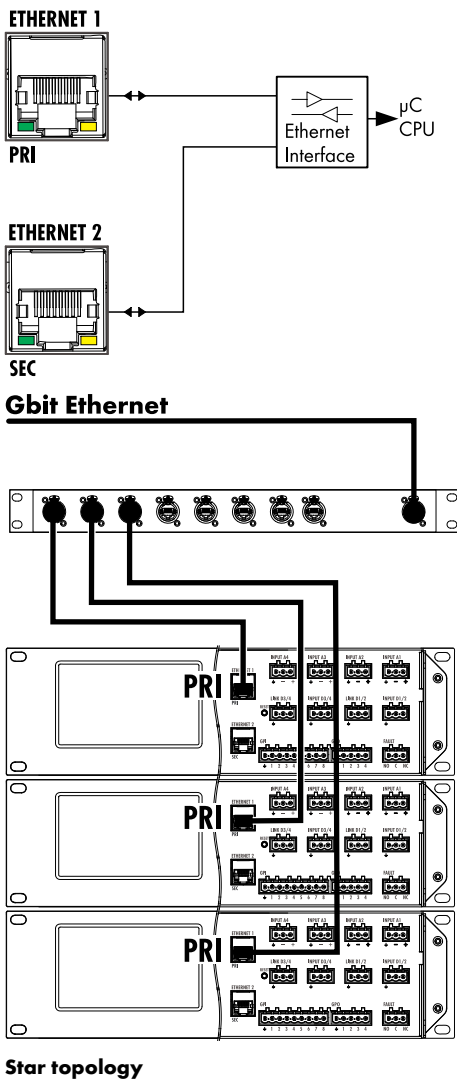
For this purpose, use the upper RJ45 (**ETHERNET 1/PRI**) connector socket (1 Gbit/s/100 Mbit/s – peer-to-peer) requiring star topology network wiring. Daisy-chaining is not supported.

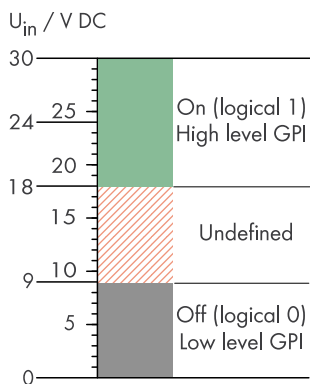
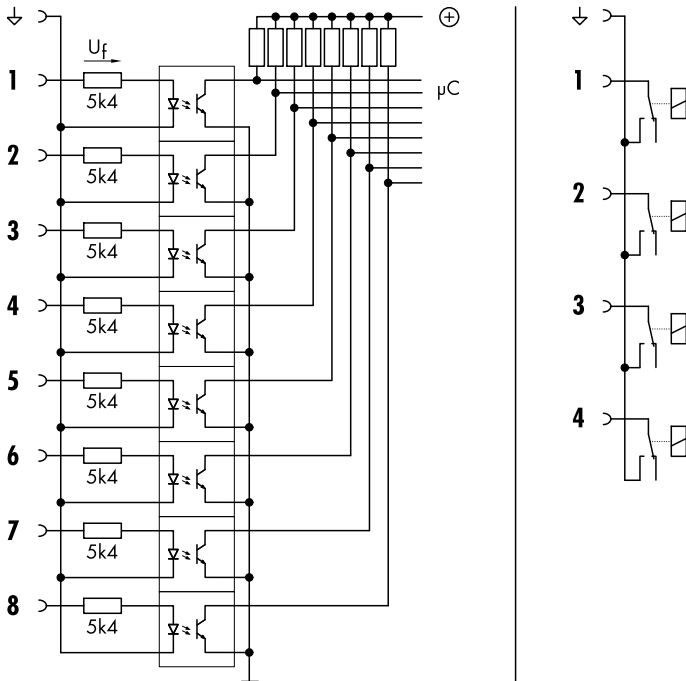
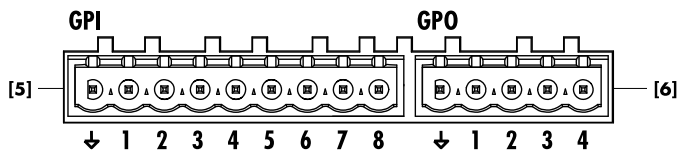
**Note:** The bottom RJ45 connector socket (**ETHERNET 2/SEC**) is not enabled but is reserved for future feature implementations.

### LED indicators

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

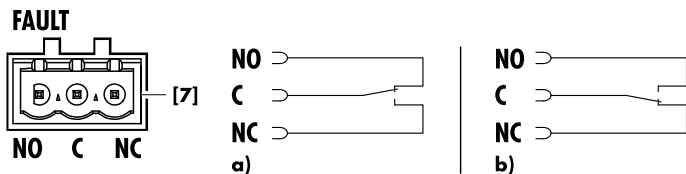
- Green** Illuminates permanently when the device is connected to an active network and flashes as long as a data stream is transmitted.
- Yellow**
- Is off when the speed is 100 Mbit/s.
  - Illuminates permanently when the speed is 1 Gbit/s.





**GPI | GPO**

Schematic circuit diagrams and logic level chart (GPI)



**FAULT**

Schematic circuit diagram and switching status:

- a) Device is On and operating
- b) Device is Off or general device error

**5.2.5 GPI/GPO (Hardware description)**

Up to eight opto-coupled GPI pins [5] (General Purpose Input) and up to four GPO pins [6] (General Purpose Output) are available as additional digital control lines. This enables external control and detection functions.

**Note:** A detailed description of how to configure the GPIOs and assign the available software objects (functions) correspondingly is given in the 40D Reference manual, which can be downloaded from the related product page at [www.dbaudio.com](http://www.dbaudio.com).

Each GPI provides either level (Hi/Lo active - non-latching) or edge (rising/falling - latching) triggering.

**Note:** When using a GPI or GPO contact, observe the following:

- An external DC power supply is required.
- **GPI:** The corresponding pin is connected via an opto-coupler with a serial resistance of 5.4 kΩ.
- **GPO:** The corresponding pin is connected to ground (GND/⌵) via a relay (Low-Side-Switch). Make sure the current per GPO pin does not exceed 1 A.

**Technical specifications**

External power supply .....	24 VDC ±25% (18 - 30 VDC)/150 W
<b>GPI</b> .....	8 x Opto-coupled (galvanic isolation)
High-level .....	18 ... 30 VDC
Low-level .....	0 ... 9 VDC
Serial resistance .....	5.4 kOhms
Forward voltage drop ( $U_{f(max.)}$ ) .....	3.7 V
Input current draw per pin @ 9/18/24/30 VDC .....	1.5/2.6/3.7/4.8 mA
Connector type .....	1 x 9-pin Phoenix Euroblock male
Pin assignment .....	(⌵) GND, GPIs 1 - 8
<b>GPO</b> .....	4 x Low-Side-Switch-Relay
High-state .....	Closed (connected to common GPO GND)
Low-state .....	Open (high resistive)
Max. current draw .....	1 A/Total: 4 A
Connector type .....	1 x 5-pin Phoenix Euroblock male
Pin assignment .....	(⌵) GND, GPOs 1 - 4

**5.2.6 FAULT**

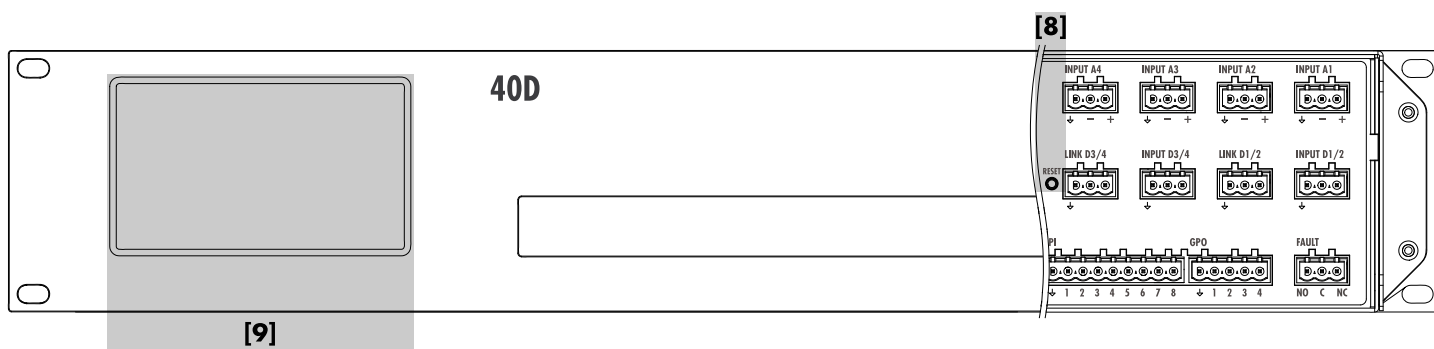
An additional 3-pin Phoenix Euroblock fault contact [7] is provided allowing a general device error to be remotely indicated.

**Note:**

- The assignment of the corresponding software object is fixed and cannot be changed by the user.
- During a firmware update, the fault contact switches to status **b)**, as shown in the graphic opposite.

**NO** Normally Open  
**C** Common  
**NC** Normally Closed

## 5.3 Controls and indicators



### 5.3.1 RESET (System reset)

A reset button (RESET [8]) is located on the rear panel next to the digital LINK D3/D4 connector terminal.

To prevent accidental system reset, the button is slightly recessed.

To perform a system reset, proceed as follows:

**Note:** All device preferences will be set to factory defaults except for the network and fixed device settings.

1. Isolate the device from mains power by releasing the powerCON connector and turn it counterclockwise.
2. Press and hold the «RESET» button using an appropriate pen.
3. While holding the «RESET» button pressed, repower the device by turning the powerCON connector clockwise.
  - ↳ Long confirmation beep.
4. Release the «RESET» button and briefly press the button again within 2 sec.
  - ↳ Short confirmation beep ⇒ the device will reboot.

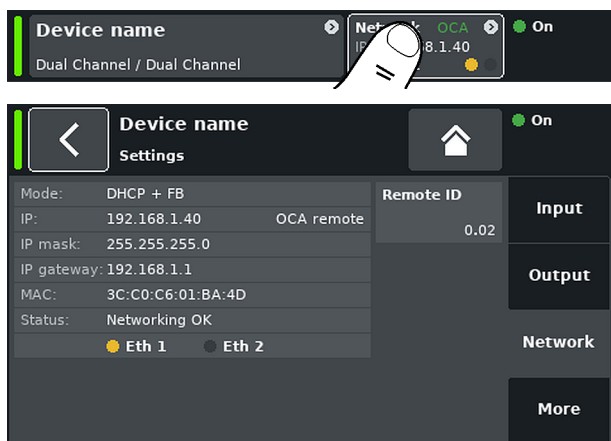
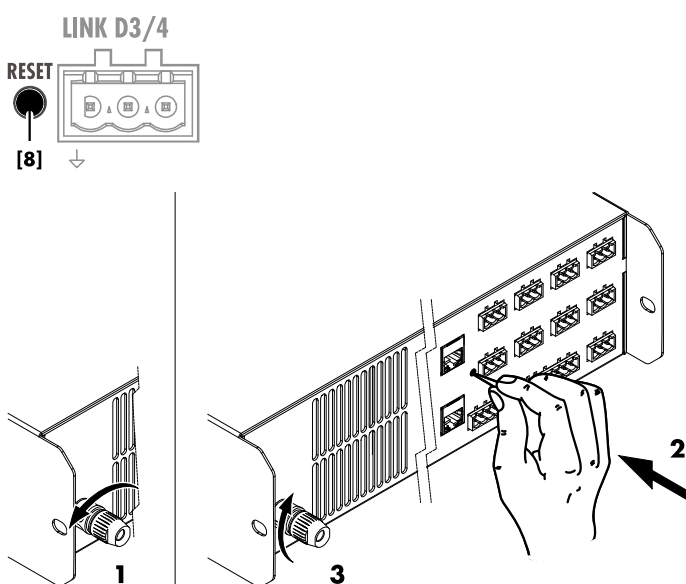
#### 5.3.1.1 Network reset option (IP settings)

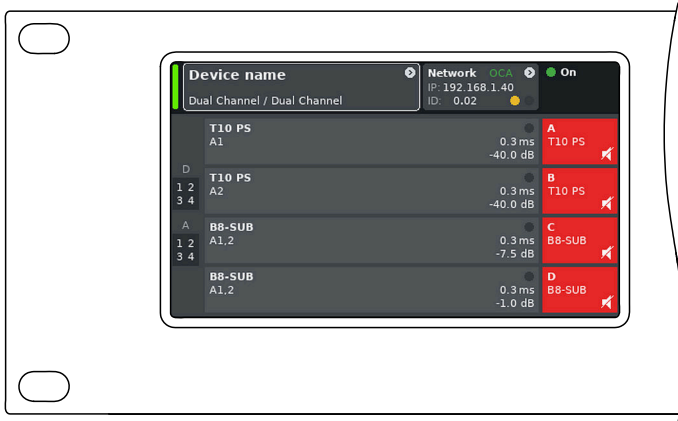
Executing the following reset procedure allows you to locally change/edit the network (IP) settings, if required.

Once the settings have been changed and the device has been shut down, the access to the network settings will be disabled again after repowering the device.

1. During normal operation, press and hold the «RESET» button for 5 sec.
  - ↳ Long confirmation beep.
2. Release the «RESET» button and briefly press the button again within 2 sec.
  - ↳ Short confirmation beep.

The network settings will become accessible for editing by tapping the «Network» navigation button as shown in the graphic opposite.





### 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 [9] with a resolution of 480 x 272 pixels.

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).


#### Screen contents

The display provides comprehensive information regarding the channel settings/statuses as well as the device settings/statuses.

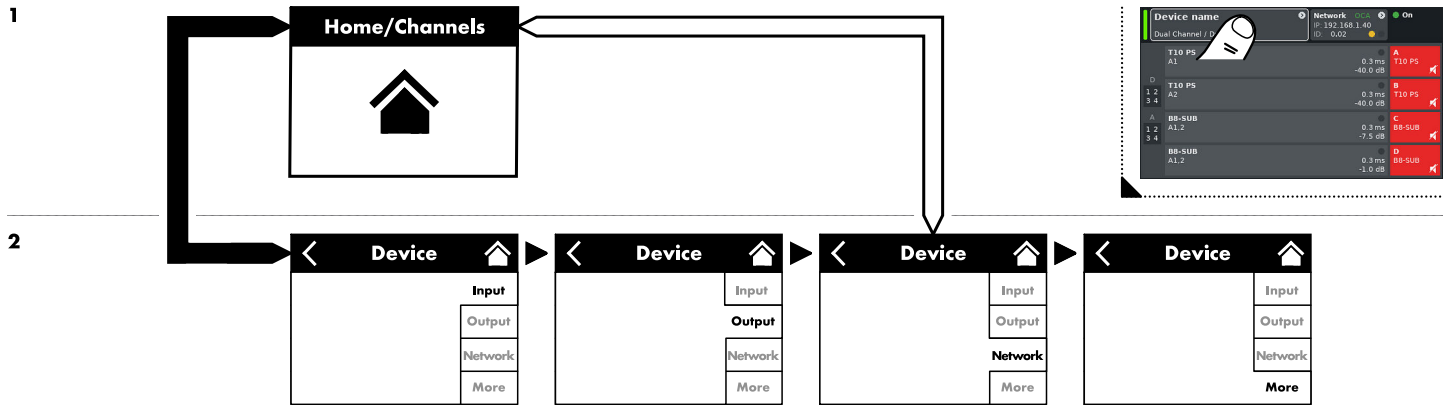
The structure of the screen content(s) is divided into two main axes, the «Home» view, including the «Channel» settings/statuses, and the «Device» settings/statuses views.

**Note:** A detailed description on the screen contents is given in the 40D Reference manual which can be downloaded from the related product page at [www.dbaudio.com](http://www.dbaudio.com).

#### Accessing the screen contents

⇒ To access a particular subscreen, simply tap  the corresponding screen item, shown as an example in the graphic below.

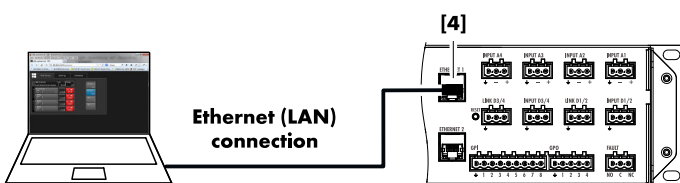
#### Screen access and structure chart





### Recommended and tested browsers:

- Windows:**
- Firefox V22.0 or higher
  - Microsoft Internet Explorer V11 or higher
  - Microsoft Edge V12 or higher
  - Google Chrome V21 or higher
  - Opera V15 or higher
- macOS:**
- Safari V6.0 or higher
  - Firefox V22.0 or higher
  - Google Chrome V21 or higher
  - Opera V15 or higher
- iOS:**
- iOS 6 or higher
- Android:**
- Mobile Firefox V27.0 or higher
  - Android Browser V4.4 or higher



### 6.1 Initial device setup

The device is mainly intended to be set up and operated via the d&b Remote network using the d&b R1 Remote control software.

Provided R1 is already installed and the device has been connected either directly or through the network, proceed as follows:

⇒ From the startup menu, choose the «R1 V3 Initial device setup» entry.

↳ R1 is launched and automatically switches to «Online» mode and the «Service» view is displayed.

In the left pane of the view, the connected device is listed.

In the right pane, the corresponding

«Filter» ⇒ «Initial device setup»

is set by default and provides you with basic parameters (in alphabetical order) to set up the device.

### 6.2 Web Remote interface

Alternatively, the integrated Web Remote interface also provides direct access to the user interface using a standard web browser. The Web Remote interface is mainly intended for configuring a single device.

**Note:** A detailed description of the Web Remote interface is given in the 40D Reference manual which can be downloaded from the related product page at [www.dbaudio.com](http://www.dbaudio.com).

### Physical setup and direct connection

Simply connect the LAN connector port of your computer to the upper RJ45 (**ETHERNET 1/PRI**) connector socket **[4]** of the device.

By factory default, the IP address is set to: **192 . 168 . 1 . 40**.

To access the device, manually assign an IP address to the computer in your network in the same subnet as the device.

1. Navigate to the network settings of your computer associated with your network adapter.
2. Open the corresponding network properties dialog.
3. Enter a static IP address (e.g. **192 . 168 . 1 . 11**) in the same subnet (**255 . 255 . 255 . 0**) as the device.
4. Confirm the changes and close the network properties dialog.
5. To display the Web Remote interface page of the device, enter its IP address (**192 . 168 . 1 . 40**) in the address bar of your web browser.

## 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:

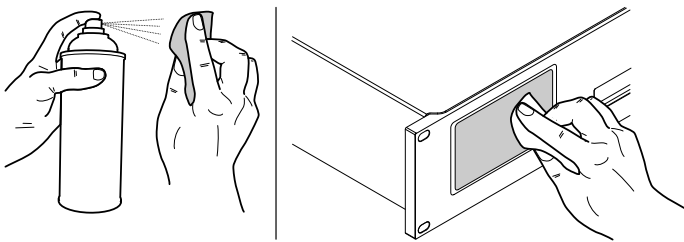
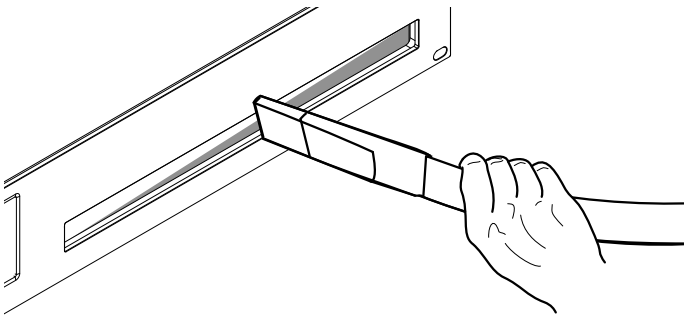
- objects or liquids have entered the device.
- the device does not operate normally.
- the device was dropped or the housing is damaged.

## 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.

However, the air-intake is covered by a grill which should be regularly cleaned (vacuumed) using an appropriate vacuum cleaner.



### 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.



**8.1 Declaration of Conformity**

This declaration applies to:

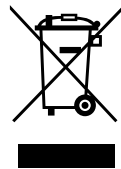
**d&b Z2830 40D Amplifier**

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](http://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.

This page provides an overview of the open source software used in this product. As required by the GPL and LGPL licenses, we will send you a copy of the used source code on request. If you would like to obtain a copy, please contact us by mail to: [software.support@dbaudio.com](mailto:software.support@dbaudio.com)

