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. Keep water or other liquids away from the unit. Do not place liquid filled containers, for example beverages, on top of the unit.
6. Do not operate the unit while it is wet or standing in liquid.
7. 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.
8. 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.
9. 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.
10. Unplug this apparatus during lightning storms or when unused for long periods of time.
11. 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.
12. 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.
13. 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.
14. 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.
15. An experienced user must always supervise the equipment, especially if inexperienced adults or minors are using the equipment.
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.

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Qty.</th>
<th>d&amp;b Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1]</td>
<td>1</td>
<td>Z2760 or Z2770</td>
<td>d&amp;b 10D or 30D Amplifier, including:</td>
</tr>
<tr>
<td>[2*]</td>
<td>1</td>
<td>Z2610.xxx</td>
<td>Power cord [specific to country*].</td>
</tr>
<tr>
<td>[3]</td>
<td>9</td>
<td></td>
<td>3-pin Phoenix Euroblock female:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Intended for the INPUT/LINK/FAULT connector sockets.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Connector type: MSTB 2,5 / 3-STZ - Order code: 1776168</td>
</tr>
<tr>
<td>[4]</td>
<td>2</td>
<td></td>
<td>4-pin Phoenix Euroblock male:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Intended for the SPEAKER OUTPUTS connector sockets.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Connector type: IPC 5/ 4-STF-7,62 - Order code: 1709173</td>
</tr>
<tr>
<td>[5]</td>
<td>1</td>
<td></td>
<td>6-pin Phoenix Euroblock female:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Intended for the GPIO connector socket.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Connector type: MSTB 2,5/ 6-STZ - Order code: 1776126</td>
</tr>
</tbody>
</table>

* Mains plug types and associated standards
[Graphics are similar illustrations only and not in scale]
The d&b 10D/30D amplifiers are designed for installation purposes and intended to be used with applicable d&b loudspeakers. A LINEAR setup is available allowing the amplifiers to be used as linear installation power amplifiers.

**NOTICE!**

The device complies with the electromagnetic compatibility requirements of EN 55103 (product family standard for audio, video, audio-visual and entertainment lighting control apparatus for professional use) for the environments E1 (residential) and E2 (business and commercial).

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.

### 2.1 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 on the d&b website at [www.dbaudio.com](http://www.dbaudio.com).

The minimum recommended impedance per channel is 4 ohms.

<table>
<thead>
<tr>
<th>Nom. impedance</th>
<th>Cabinets per channel</th>
</tr>
</thead>
<tbody>
<tr>
<td>4 Ω</td>
<td>1</td>
</tr>
<tr>
<td>8 Ω</td>
<td>2</td>
</tr>
<tr>
<td>12 Ω</td>
<td>3</td>
</tr>
<tr>
<td>16 Ω</td>
<td>4</td>
</tr>
</tbody>
</table>

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).
The 10D/30D amplifiers represent the next generation of four channel Class D installation amplifiers. They are developed and manufactured by d&b using Digital Signal Processing (DSP) to incorporate loudspeaker specific configurations and user definable setups, equalization and delay functions. The amplifiers are designed to drive applicable d&b loudspeakers and provide comprehensive management and protection capabilities. These high performance amplifiers provide the power density required for installation purposes while the powerful signal processing extends the level of functionality of the on-board features.

The onboard Web Remote interface features direct access via Ethernet for initial startup and configuration as well as remote control using a standard web browser. The front panel provides status monitoring LEDs for either POWER, MUTE, DATA or signal states.

The user definable equalizer features two independent 16-band EQ groups within each channel. These provide parametric, notch, shelving and asymmetric filters as well as a graphic EQ (via the d&b R1 Remote control software V2) allowing instant switching between two EQ curves for comparison. The delay capability covers a range of up to 10 s. All loudspeaker specific functions such as CUT, HFA, HFC, CSA or CPL are available. The DSP unit of the amplifier has a fixed latency of 0.3 ms.

The amplifiers enable up to eight input channels and provide four analog inputs as well as four AES3 channels with corresponding link outputs. Each input channel can be routed to any of the output channels A to D. Phoenix™ Euroblock connectors A1-A4 are used as analog inputs and link outputs, input connectors D1/2 - D 3/4 as digital inputs. Link outputs D1/2 and D3/4 are supplied as digital outputs. This 1:1 ratio of inputs to amplifier output channels increases flexibility of application, particularly for use as monitor, frontfill or effect channels.

For applicable loudspeakers, d&b LoadMatch enables the 10D/30D amplifiers to electrically compensate for the properties of the cable used to connect the loudspeakers to the amplifier outputs. This function which covers a bandwidth of up to 20 kHz preserves the tonal balance when cable lengths of up to 70 m (230 ft) are used. Due to its design LoadMatch does not require additional wires and is therefore applicable with any connector type used. To provide optimum compensation, cable length and cross-sectional data as well as the number of loudspeakers connected to the amplifier channel must be entered on the amplifier.

The 10D/30D utilize a switch mode power supply with active PFC to produce a clean current draw and ensure stable and efficient performance under adverse mains conditions. The high power capabilities provide increased power to fully drive all applicable d&b loudspeaker cabinets and sufficient headroom for any future systems.
Remote control and full system integration are realized using the d&b ArrayCalc simulation software and R1 Remote control software V2. The 10D/30D amplifiers include two Ethernet ports on RJ 45 connectors. Both, Ethernet and dbCAN protocols are incorporated. The Ethernet protocol implemented in the d&b R1 Remote control software V2 and the 10D/30D amplifiers is a protocol developed by the OCA Alliance (Open Control Architecture Alliance), of which d&b is a founding member. For further details, please refer to the OCA website: www.oca-alliance.com.
4 Technical specifications

Audio data (linear setting with subsonic filter)
Maximum output power per channel (THD + N < 0.5%, all channels driven)

10D: CF = 6 dB @ 4/8 ohms .............................................. 4 x 700 / 350 W
10D: CF = 12 dB @ 4/8 ohms .............................................. 4 x 700 / 350 W
10D: Maximum output voltage ............................................. 82 V
30D: CF = 6 dB @ 4/8 ohms .............................................. 4 x 1000/800 W
30D: CF = 12 dB @ 4/8 ohms .............................................. 4 x 1600/800 W
30D: Maximum output voltage ............................................. 117 V

Frequency response (—1 dB) ........................................... 35 Hz – 25 kHz
THD+N (20 Hz – 20 kHz, 200 W @ 4 ohms) ................................ < 0.5%

S/N ratio (unweighted, RMS)
Analog input (10D/30D) .............................................. > 101/104 dBr
Digital input (10D/30D) .............................................. > 103/106 dBr

Damping factor (20 Hz – 200 Hz into 4 ohms) ................................ > 80
Crosstalk (20 Hz – 20 kHz) ............................................. > –45 dBr
Gain (Linear mode @ 0 dB) ............................................. 31 dB

Protection circuits
Output current protection .............................................. 45 A
Overvoltage protection .............................................. Up to 400 VAC
Self-resetting overtemperature protection ................................
Output DC offset protection ...........................................................
Output HF Voltage Limiter ...........................................................
Output pop-noise suppression ...........................................................

Power supply
Universal range switched mode power supply with active power factor correction (PFC)
Mains connector ......................................................... powerCON
Rated mains voltage ..................................................... 100 to 240 V, 50 – 60 Hz
Mains fuse ................................................................. internal

Power consumption (typical values)
Standby ................................................................................. 9 W
Idle .................................................................................. 48 W
Max. power consumption (short term RMS) ...........................................
10D: .............................................................................. 1.3 kW
30D: .............................................................................. 2.2 kW
Automatic Standby ................................................................. abc

Audio input connectors
Analog INPUT (A1 - A4) ...................................................... 3-pin Phoenix Euroblock male
also used as link output wired in parallel
Pin assignment ......................................................... GND, neg., pos.
Input impedance ......................................................... 38 kOhms, electronically balanced
Common mode rejection (CMRR @ 100 Hz/10 kHz) .................... > 60/50 dB
Maximum input level (balanced/unbalanced) ......................... +23/29 dBu
................................................................. +27 dBu @ 0 dBFS

Digital INPUT (D1/2, D3/4) ........................................... 3-pin Phoenix Euroblock male, AES3
Pin assignment ......................................................... 1 = GND, 2 = AES Signal, 3 = AES Signal
Input impedance ......................................................... 110 ohms, transformer balanced
Synchronization ......................................................... Word-Sync: PLL-locked to source (slave mode)
Digital LINK (D1/2, D3/4) ........................................... 3-pin Phoenix Euroblock male
electronically balanced ................................................. analog signal buffering (refresh), power fail relay (Bypass)

Output connectors
SPEAKER OUTPUTS A/B/C/D .................................. 2 x 4-pin Phoenix Euroblock female

Network connectors
CAN .............................................................................. 2 x RJ 45 parallel
ETHERNET ............................................................... 2 x RJ 45
.............................. Dual Ethernet port with built-in 2-port Ethernet switch
................................................................. 10/100 Mbit

GPIOs/FAULT contact
GND (GND) / GPIOs 1 - 5 ............................................ 1 x 6-pin Phoenix Euroblock male
................................................................. Opto-coupled (galvanic isolation)
DC voltage ......................................................... 24 VDC (±25% / 18 VDC – 30 VDC)
Maximum current draw .............................................. 1 A
Source resistance ......................................................... 5.4 kΩ
Diode forward bias ......................................................... 1.2 V

FAULT contact ......................................................... 1 x 3-pin Phoenix Euroblock male

Controls
POWER ................................................................. Mains power switch (rear panel)
RESET ................................................................. Reset button (rear panel, recessed)

Indicators
POWER ................................................................. Power indicator (green)
Data ................................................................. Data stream indicator (yellow)
Mute A/B/C/D ............................................................... Channel mute indicator (yellow)
................................................................. Channel/Device error indication
ISP A/B/C/D ............................................................... Input Signal Present indicator (green)
GR A/B/C/D ............................................................... Gain Reduction indicator (yellow)
OVL/Error A/B/C/D .................................................. Overload/Error indicator (red)

d&b 10D/30D Manual 1.10 en
**Technical specifications**

**Digital Signal Processing**
- System startup time: 17 sec.
- Sampling rate: 96 kHz / 27 Bit ADC / 24 Bit DAC
- Latency analog input: 0.3 msec.
- Latency digital input (AES): 0.3 msec.
- Input dynamic: 48 kHz / 96 kHz
- ADC dynamic: > 124 dB
- DAC dynamic: > 110 dB
- 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

**Operating conditions**
- Temperature range*: -10 °C ... +40 °C / +14 °F ... +104 °F
- Temperature range**: -10 °C ... +50 °C / +14 °F ... +122 °F
- Storage temperature: -20 °C ... +70 °C / -4 °F ... +158 °F
- Humidity (rel.), long term average: 70%

**Fan noise emission**
- Rack mounted, measured on axis, 1 m to front panel, A-weighting:
  - Idle: 32 dB(A)
  - Max. RPM: 48 dB(A)
- Ambient temperature: 22 °C / 71.6 °F

**Dimensions and weight**
- Height x width x depth: 2 RU x 19” x 435 mm
- Height x width x depth: 2 RU x 19” x 17.1”
- Weight: 10.6 kg / 23.4 lb

---

**10D enclosure dimensions in mm [inch]**
### 5.1 Connections

<p>| | | |</p>
<table>
<thead>
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</table>
| [1] | **Mains connector socket.**  
Refer to Chapter 6.2.1 "Mains connection" on page 13. | [4] | **ETHERNET.**  
Refer to Chapter 6.2.4 "ETHERNET (Dual Ethernet port)" on page 16. |
| [2] | **Audio INPUT (analog/digital) and LINK connectors.**  
Refer to Chapter 6.2.2 "Audio INPUT and LINK connectors" on page 14. | [5] | **CAN (CAN-Bus).**  
Refer to Chapter 6.2.5 "CAN (CAN-Bus)" on page 17. |
| [3] | **Output connectors.**  
Refer to Chapter 6.2.3 "Output connectors" on page 15. | [6] | **GPIO connector.**  
Refer to Chapter 6.2.6 "GPIOs (Hardware description)" on page 18 |
| [7] | **FAULT connector.**  
Refer to Chapter 6.2.7 "FAULT contact" on page 18 |

### 5.2 Controls and indicators - User interface

<p>| | | |</p>
<table>
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<tr>
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</thead>
</table>
| [8] | **Mains power switch.**  
Refer to Chapter 6.3 "Controls and indicators" on page 19, following Chapter 6.3.1 "Mains power switch" on page 19 | [9] | **RESET**  
Refer to Chapter 6.3.2 "RESET (System reset)" on page 19 |
| [10] | **Status LEDs**  
Refer to Chapter 6.3.3 "Status indicators (LEDs)" on page 20 |
6.1 Rack mounting and cooling

Rack mounting
The 10D and 30D amplifier enclosures are designed to fit standard 19" equipment racks or cabinets.

When specifying a rack, be sure to allow extra depth (150 mm / 6" is usually sufficient) to accommodate the cables and connectors at the rear of the amplifier.

When mounting 10D/30D amplifiers into a 19" rack or equipment cabinet, do not just rely on fixing and supporting the amplifiers by their front panels using appropriate rack mounting screws and U washers as shown in the graphic opposite. Provide additional support ...

▪ by fixing the rear-mounted rack ears using appropriate rack mounting screws and U washers as shown in the graphic opposite.
▪ or using shelves fixed to the inner sides of the cabinet or rack.

Cooling
Thermal conditions are a vital factor to ensure operational safety of the power amplifiers. The 10D and 30D 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 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 10D/30D amplifiers with D6 or D12 amplifiers in one rack.
▪ Do not rack up 10D/30D amplifiers together with other devices producing additional heat with opposing airflows.
6.2 Connections

6.2.1 Mains connection

**WARNING! Potential risk of electric shock.**

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 unit to mains power supplies with protective earth only.
- If there is any sign of obvious damage to the power cord and/or mains connector, 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 unit 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 powerCON® mains connector under load or live.

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 V AC, ~50/60 Hz, 1000 W.

A powerCON® mains connector socket [1] is fitted on the rear panel and an appropriate power cord [2] is supplied.

**Number of devices per phase conductor**
When full output power is required, it is strongly recommended to operate only one device per phase conductor.

For further details please refer to ⇒ Chapter 14.4 "Current/power draw and thermal dissipation" on page 78.
6.2.2 Audio INPUT and LINK 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 (Please refer to Chapter 13.6 "Input routing" on page 65).

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 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 ……………………………………………………………... 38 kOhms, electronically balanced
Common mode rejection (CMRR @ 100 Hz/10 kHz) …………………… > 60 / 50 dB
Maximum input level (balanced/unbalanced) ………………………………. +23 / 29 dBu
…………………………………………………………………………………. +27 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 ……………………………………………………………... 48 / 96 kHz / 2 Ch/n
Synchronization ……………………………………………………………... Word-Sync: PLL-locked to source (slave mode)
LINK digital (Output) ……………………………………………………………... 3-pin Phoenix Euroblock male
electronically balanced
…………………………………………………………………………………… analog signal buffering (refresh)
…………………………………………………………………………………… Power Fail Relay (Bypass)
6.2.3 Output connectors

**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 supplied Phoenix Euroblock connector terminals [4].
- Ensure all contact screws are properly tightened. Recommended **torque** settings (min/max): 0.7/0.8 Nm.
- Ensure the fixing screws of the connector terminal are properly screwed 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 and how to configure the appropriate output mode is given in Chapter 12.3.1 "Output mode" on page 46.

For further information regarding the applicable output modes for each loudspeaker system, please refer to the relevant loudspeaker manual.
6.2.4 ETHERNET (Dual Ethernet port)

A Dual Ethernet port with a built-in 2-port Ethernet switch (10/100 Mbit/peer-to-peer) is provided enabling remote control via Ethernet and allows the following physical network topologies:

- Star topology
- Recommended standard,
- Daisy chain topology
- For a maximum of three devices,
- or a combination of both topologies.

**Note:** A detailed description of remote control via Ethernet is given in the technical information TI 310 (d&b code D5310.EN) which can be downloaded from the d&b website at [www.dbaudio.com](http://www.dbaudio.com).

**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 10 Mbit.
- Illuminates permanently when the speed is 100 Mbit.

### Network topologies

- **Star topology**
- **Daisy chain topology for a maximum of three devices**
- **Combined topology**
6.2.5 CAN (CAN-Bus)

The device is equipped with a 2-wire serial remote control interface carrying the CAN-Bus signals to enable remote control with the d&b R60 USB to CAN or R70 Ethernet to CAN interfaces.

**Note:** A detailed description of remote control via the d&b Remote network (CAN-Bus) is given in the technical information TI 312 (d&b code D5312.EN) which can be downloaded from the d&b website at [www.dbaudio.com](http://www.dbaudio.com).

All pins of both connectors are wired in parallel allowing either to be used as input or output (daisy chaining) or for terminating the CAN-Bus network.

**Pin assignment**

The pin assignments of both, the RJ 45 sockets and the cable connectors, are shown in the graphic opposite.

**Note:** The connections for the CAN-Bus are referenced to common ground. The "CAN Ground" is routed via the cable shielding and is hardwired to PE.

Within the CAN-Bus network, shielded cables and shielded RJ 45 connectors (metal housing) must be used while the cable shielding must be connected to both sides.

**CAN network topologies**

- **Daisy chain topology**
  - With R60 USB to CAN interface

- **Combined topology**
  - With R70 Ethernet to CAN interface
6.2.6 GPIOs (Hardware description)

Up to five opto-coupled GPIO pins [6] (General Purpose Input Output) are available as additional digital control lines which can be configured to be input or output (In/Out). This enables external control and detection functions.

Configuration

Each GPIO can be defined as an input or output and combined with either level (Hi/Lo active - non-latching) or edge (rising/falling - latching) triggering.

A detailed description on how to configure the GPIOs and assign the available software objects (Function) correspondingly is given in ⇒ Chapter 12.5.4 "GPIOs (Configuration)" on page 54.

Note:

- When configuring a GPIO contact either as an input (GPI) or as an output (GPO), 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 pin (GPO) does not exceed 1 A.

Technical specifications

- External power supply .......................... 24 VDC (±25% / 18 VDC – 30 VDC)
- Power capacity up to 150 W
- GPIO connector ................................. 1 x 6-pin Phoenix Euroblock male
- Pin assignment ................................. GND (G) / GPIOs 1 – 5, In/Out
- GPI ................................................. Opto-coupled (galvanic isolation)
- Serial resistance: 5.4 kΩ
- Diode forward bias: 1.2 V
- Input current draw per pin @ 18/24/30 VDC: 3/4/5 mA
- GPO ................................................. Low-Side-Switch-Relay
- Current carrying capacity per pin: 1 A / Total: 5 A

6.2.7 FAULT contact

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.

- NO Normally Open
- C Common
- NC Normally Closed
6.3 Controls and indicators

6.3.1 Mains power switch
The on/off rocker switch [8] is located on the top left of the rear panel.

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

**ON**   The unit is switched on and ready for operation.

6.3.2 RESET (System reset)
A reset button (RESET [9]) is located on the rear panel between the INPUT A2 and INPUT A3 connector terminals. To prevent accidental system reset, the button is slightly countersunk.

To perform a system reset, proceed as follows:

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

1. Switch off the device.
2. Press and hold the RESET button using an appropriate pen and repower the device.
   - Long confirmation beep.
3. Release the button and briefly press the button again within 2 sec.
   - Short confirmation beep. The device will boot up.

Further details on the different reset functions are described in Chapter 12.5.1.3.1 “System reset” on page 51.
6.3.3 Status indicators (LEDs)

On the bottom left of the front panel the following status LEDs are provided:

**POWER**
- Green: Indicates two states:
  - Permanent: Power on.
  - Flashing ( ): Standby.

**DATA**
- Yellow: Indicates two states:
  - Permanent: A network cable is connected to one of the ETHERNET (RJ 45) sockets of the device.
  - Flashing: A data stream is transmitted.

**MUTE**
- Red: Mute status of the respective channel.

In addition these LEDs also acts as Error indicators for either a channel or device error. In the case of an error the LEDs starts flashing according to the following flashing patterns:

- **Channel error:** Single flash of the corresponding Channel mute LED.
- **Device Error:** Double flash of all Channel mute LEDs.

**Signal LEDs**
Indicates three states:
- Green: ISP (Input Signal Present):
  - Illuminates when the analog input signal exceeds –30 dBu or when the digital input is locked to 48 or 96 kHz and the signal exceeds –57 dBFS.
- Yellow: GR (Gain Reduction):
  - Illuminates when one limiter reduces the signal by a predefined level (GR ≥ 3 dB)
- Red: OVL (Overload):
  - Illuminates when ...:
    - any signal within the channel exceeds –2 dBFS.
    - DSP suffers from an internal EQ filter overflow.
    - any limiter causes a gain reduction of 12 dB or more.
    - the output signal is limited to prevent distortion due to output peak current overload.
Initial configuration

The integrated Web Remote interface provides direct access to the user interface of a single amplifier using a standard web browser.

**Note:** The user interface of the amplifier can only be accessed after connecting the amplifier to a computer via Ethernet. It is possible to connect the computer and the amplifier directly, however, this requires to manually set static IP addresses.

**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

**Physical setup**

Simply connect the LAN connector port of your computer to the ETHERNET 1 connector [4] of the amplifier.

**Direct connection**

By factory default, the amplifier’s IP addresses are set to:

- **10D:** 192.168.1.10
- **30D:** 192.168.1.30

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

Proceed as follows:

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 in the same subnet as the amplifier:
   - **IP address:** e.g. 192.168.1.11
   - **Subnet mask:** 255.255.255.0
4. Confirm the changes and close the network properties dialog.
5. To display the Web Remote interface page of the amplifier, enter its IP address in the address bar of your web browser.
   - 192.168.1.10 (10D)
   - 192.168.1.30 (30D)
8.1 Operating concept

The operating concept allows two different methods of interaction and configuration:


2. Configuration and operation as well as firmware updates of multiple amplifiers via Ethernet (OCA/AES70) or CAN-Bus using the d&b Remote control software R1.

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**

In Edit mode, the Edit cursor is marked by a yellow frame. To leave Edit mode click the respective Menu item again. The color of the frame will change from yellow back to white again.

8.1.1 Web Remote interface

**Web Remote interface page**


**Web Remote tab**

The «Web Remote» tab shows the user interface of the connected amplifier.

All screens and screen items can be accessed by simply clicking the relevant item.

**Edit**

For applicable parameters, the «Edit» button becomes accessible and a corresponding dialog will pop up.
To change the value of an input field such as Level, Delay time, CPL, EQ settings or Speaker setup, proceed as follows:

1. Enter the desired value or select the respective item.
   - For parameters such as «Speaker setup» or «Filter type» a drop-down list is provided to allow easy and quick access to the list items.
   - You can simply scroll through the list or type the corresponding character directly into the input field.

2. Confirm your entry by clicking «OK».
   - The entered value or selected list item will be applied and the «Edit» dialog will be closed.

**Note:** However, please note that you have to finally confirm your settings by clicking the respective «OK» button or input field again (Edit cursor changes from yellow to white ⇒ Position cursor).

### Additional editing

**Value +/ Value –**

To change the value of an input field such as CPL, Level, Delay time, EQ settings or Speaker setup using the «Value +» «Value –» buttons, proceed as follows:

1. Select the appropriate field and change the value using the «Value +»/«Value –» buttons.
   - Every mouse click will increment the «Value +»/«Value –» by 0.5.
   - For example, to increase the level by 3 dB, simply click the «Value +» button six times or simply hold the mouse button until the amount of steps has been reached.
   - On the left, a blue counter box will appear showing the number of steps.

2. When the desired value (steps) has been reached, stop clicking or release the mouse button respectively.
   - The counter box moves to the input field previously selected.

3. As an alternative, values can also be adjusted using the wheel mouse.
   - Simply select the appropriate field and adjust the value using the wheel. This is very useful when entering major changes.
   - The counter field will also appear and behaves in the same manner as described above.

4. To confirm the set value, click the relevant field again or click the respective «OK» button.
5. To change/enter a device or Channel name as well as IP settings, click the relevant screen item.

↳ An input mask will be displayed which allows you to enter the desired data by clicking the respective characters and/or numbers.

6. Confirm your entry by clicking the corresponding «OK» button.

**Keyboard entries**

In addition, entries such as Device name or Channel name as well as IP addresses can also be entered using the keyboard. However, depending on the behavior of the browser or its settings, some characters may not be accepted or may change the focus.

**Password dialog**

Once the device is locked with a password, the Web Remote interface is also locked and can no longer be accessed.

A corresponding dialog will pop up to allow you to unlock the device.

**Event log tab**

The «Event log» stores a maximum of 10000 records. Once the maximum number of records is reached, the system starts deleting the first ones ⇒ Ring buffer.

The number of records displayed depends on the size of the browser window.

Located on the right-hand side of the record list are various Navigation buttons allowing you to scroll through the list using the «Page Up/Down» or «Line Up/Down» buttons or by directly jumping to the «Latest» record.

In addition, the editable «Record» field allows you to enter a dedicated record number. The corresponding record will be displayed at the very bottom of the record list.

**Storage option**

In addition, a storage option is provided which allows you to store the Event log data locally. This is mainly intended for service and/or troubleshooting purposes.

To save the Event log data locally, proceed as follows:
1. Select the «Save» button at the bottom right corner of the web browser window. 
↳ A corresponding dialog will pop up providing you with a drop-down list from which you can select either the number «Last [n]» of records or «All» records to be saved.
2. Choose the desired option from the drop-down list and select «Save».
↳ The event log data will be downloaded and the download progress will be displayed.
Once the download is completed, a corresponding message will be displayed.
3. Select «Save» to store the Event log data locally.
↳ Your web browser will display the corresponding dialog and the file will be saved as Event.log to the local download directory you have specified in the download settings of your browser.

Service tab
The «Service» tab provides a «Backup»/«Restore» function for the complete amplifier configuration.

Login
To access the service functions, you first have to log in.
If the device is locked by password protection, use the corresponding password to log in. If no password protection is applied, use “dbaudio” as a password.

Backup
⇒ Select the «Download backup file from device» button to store the backup file (*.backup) locally.
↳ Your web browser will display the corresponding dialog and the file will be saved to the local download directory you have specified in the download settings of your browser.

Restore
1. Select the «Upload backup file to device» button to upload the backup file onto the device.
↳ Your web browser will display the corresponding dialog.
Once the backup file is uploaded, the «Remote ID» and «IP settings» become accessible and can be edited, if necessary by simply clicking into the corresponding input field.+
2. As a final step, select the «Activate backup file on device» button to apply the backup and remote settings.

Log file collection
For service or trouble shooting purposes, a log file collection can be downloaded.
Select the «Download log file collection» button to store the collection file (*.logpack.) locally. Your web browser will display the corresponding dialog and the file will be saved to the local download directory you have specified in the download settings of your browser.

To exit the «Service» tab functions, click the «Logout» button at the top.

Commands tab
This functionality is intended for service purposes only.

Licenses and Copyright
Selecting the d&b logo at the top left opens the «Licenses and Copyright» information page.
8.2 Screen layout and conventions
The screen layout is split into two main parts, the Header and the Data sections.

**Header**
The Header (Headline) indicates which screen is currently selected. In the Device and Channel setup screens, the Header allows direct access to the previous screen (Back button -) or to the Home screen (Home button -).

**Data**
Except for the Home screen, the Data sections of the Channel and Device setup screens are structured in tabs on the right hand side of the screen. The tabbed structure of the screens allows you to directly access the desired subscreens.

8.3 Screen items and views
This section describes the different menu items, views and function elements characterizing the user interface of the 10D/30D.

### 8.3.1 Function buttons
**Properties:**
- The top left of the button shows the function name while the bottom right shows the status of the function. In addition, the status is also indicated by colors.
- The function is activated by clicking the button.
- Functions buttons can also be combined with navigation buttons.

### 8.3.2 Navigation buttons
**Properties:**
- The top right of the button shows the navigation symbol (→).
- Open the related subscreen by clicking the button.
8.3.3 Input fields

Properties:
- The top left of the button shows the field name while the bottom right shows the value. The value can be edited.
- Select the value by clicking the button.
- Edit the value using the «Value +»/«Value -» buttons.

Note: The set value will be applied directly.

8.3.4 Input masks

Properties:
- Appears automatically anytime you need to enter data to define a particular function. The input mask provides you with an alphanumeric or numeric keypad to enter, for example, a device name or a channel name (alphanumeric keypad) or an IP address (numeric keypad).
- Selection and editing is performed using the mouse.

8.3.5 Information fields

Properties:
Non-selectable/non-editable field for information purposes only.
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 Remote subscreen.

The Home screen can be accessed from any screen or menu at any level using the Home button 🏠.
9.1 Header area - Device
(from left to right):

**Power on indicator**
- **Yellow** Indicates the start up phase of the power supply.
- **Green** Indicates that the unit is switched on.
- **Red** Indicates a device error.

**Device view button**
The device name and the output mode are displayed. This button provides direct access to the Device setup screen.

**ID**
The Remote «ID» is displayed. This navigation button also provides direct access to the Remote subscreen.

**Power button**
The «Power» button provides the following functions:
- **Cancel the sequence.**
- **Mute all** Master mute. To unmute the channels, use the individual Channel mute buttons.
- **Standby** In Standby mode the device idles drawing minimal power consumption. Only the most essential functions are provided. The screen and network remain functional.

9.2 Data area - Channel strip(s)
The data area features the actual channel strips starting with the input connector and then following the real signal flow from left to right. All vital information is displayed. This includes:
- **Input signal present (ISP)**
- **Input routing**
- **Channel configuration,**
- **Controller output signal (OSP)**
- **Channel mute buttons and status.**
- **Error messages**
The channel strip follows the actual signal chain from left to right:

**ISP/OVL**
Indicates the following states for both, the analog (A) and the digital (D) signal inputs:

- **Grey** The relevant channel is not available.
- **White** The relevant channel is available and an input signal is not present or below –30 dBu.
- **Green** **ISP** (Input Signal Present): Illuminates when the analog input signal exceeds –30 dBu or when the digital input is locked to 48 or 96 kHz and the signal exceeds –57 dBFS.
- **Red** **OVL** (Overload): Illuminates when the analog input signal exceeds 25 dBu or when the digital input signal exceeds –2 dBFS.

**Channel view**
The Channel view button displays the Channel name. If no Channel name has been entered, the loudspeaker setup which is currently loaded is displayed. In addition, the activated function elements are indicated. The button provides direct access to the Channel setup screen.

**Level**
The Level input field allows direct setting of the amplifier’s relative input sensitivity in the range of –57.5 dB to +6 dB in steps of 0.5 dB.

In addition, the following indicators are available:
**ISP/OSP/GR/OVL**

**Grey**
- No signal present.

**Dark green**
- **ISP:** Channel Input Signal Present.
  - Similar to the analog and digital input indicators, this indicator illuminates when the DSP receives an analog input signal that exceeds –30 dBu or when the digital input is locked to 48 or 96 kHz and the signal exceeds –57 dBFS.

**Bright green**
- **OSP:** Power amplifier Output Signal Present.
  - Provided the respective channel is not muted, this indicator illuminates when the output voltage of the power amplifier exceeds 4.75 V<sub>RMS</sub>.

**Yellow**
- **GR (Gain Reduction):**
  - Illuminates when one limiter reduces the signal by a predefined level (GR ≥ 3 dB).

**Red**
- **OVL (Overload):**
  - Illuminates when:
    - any signal within the channel exceeds –2 dBFS,
    - DSP suffers from an internal EQ filter overflow,
    - any limiter causes a gain reduction of 12 dB or more,
    - the output signal is limited to prevent distortion due to output peak current overload.

**Channel mute**

⇒ To mute or unmute a channel or a pair of channels, simply click 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 unmuted**

A channel error is indicated on the Channel mute button by an exclamation mark ⇒ !.

A corresponding error message is issued on the Channel view button.
Due to the vast functional range and possible settings of the 10D/30D amplifiers, this section is intended as a quick reference to provide you with a systematic procedure for defining the basic settings of the amplifier.

It is advisable to start with the device settings followed by the individual channel settings.

**System reset**
Before starting to define the basic settings, perform a system reset.

1. Switch off the device.
2. Press and hold the RESET button using an appropriate pen and repower the device.
   - Long confirmation beep.
3. Release the button and briefly press the button again within 2 sec.
   - Short confirmation beep. The device will boot up.

1. **Device setup**
   - On the Home screen, click the Device view button.
     - This will enter the Device setup subscreen with the «Input» tab being active.

2. **Input (Input mode / Input routing)**
   - Define your Input mode and Input routing settings for all channels correspondingly.

   **Note:** A detailed description of the Input routing is given in the reference chapter of the Channel setup ⇒ Chapter 13.6 "Input routing" on page 65.
   
   A detailed description of the Input mode is given in the reference chapter ⇒ Chapter 12.2 "Input" on page 37.

3. **Output (Output mode)**
   - Click the «Output» tab and define your desired output mode settings for each pair of amplifier channels correspondingly.

   **Note:** A detailed description of the available output modes is given in the reference chapter ⇒ Chapter 12.3 "Output" on page 45.
**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 clicking 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 clicking the Home button (●).

   **Note:** A detailed description of the Speaker setup and LoadMatch settings is given in the reference chapter ⇒ Chapter 13.8 “Speaker” on page 69.

**4. Remote**

1. On the Home screen, click the Device view button to enter the Device setup menu.
2. Click the «Remote» tab and define your desired Remote settings correspondingly.

   **Note:** A detailed description of the remote settings is given in the reference chapter ⇒ Chapter 12.4 “Remote” on page 48.

As all the configurations and settings mentioned above can also be defined remotely, it depends on how you wish to proceed whether defining the Remote settings is the last or the first step when configuring your basic settings.

After defining all settings, exit the subscreen by clicking the Home button (●) and carry on with the individual channel settings.

**5. Channel setup**

1. On the Home screen, click 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 for all channels correspondingly.
3. After defining all settings, exit the subscreen by clicking the Home button (●).

   **Note:** A detailed description of the Input routing is given in the reference chapter ⇒ Chapter 13.6 “Input routing” on page 65.

A detailed description of the Input mode is given in the reference chapter ⇒ Chapter 12.2 “Input” on page 37.
From the Home screen, selecting the Device view button opens the Device setup screen with the «Input» tab being active.

The Device setup screen follows the same layout structure as described above and is split into the Header and the Data sections.

Using the tabbed structure of the Device setup screen provides direct access to the desired subscreens.

12.1 Device name
Selecting the centered Information field button («Edit device name») in the header of the device setup screen enables you to enter or edit the device name (maximum length 15 characters).

The input mask which appears allows either lower-case or upper-case characters by toggling the corresponding button («abc») on the bottom left.

Wrong entries can be corrected by clicking the Erase button on the bottom right.

Clicking «OK» on the top right confirms the entry, closes the input mask and switches back to the Device setup screen.

Clicking the Back button on the top left cancels any entry and switches back to the Device setup screen keeping the previous entry.
12.2 Input

Selecting the «Input» tab offers the complete input management in one place.

The tab also provides access to the ⇒ «Input routing» and ⇒ «Input settings» menus which enable you to configure dedicated input settings, such as:

⇒ Input monitoring (Mon)
⇒ Input gain (Gain)
⇒ Fallback
⇒ Override

12.2.1 Input mode

**Analog/Digital**

Both the analog and digital inputs are permanently activated providing a total of eight simultaneous input sources.
**Digital**

**NOTICE!**

When both inputs are activated and locking to the sync source is not possible, none of the inputs will receive any audio signal.

If two digital signals are used at the same time, these signals must be completely synchronous (i.e. must have the same synchronized sampling rate).

A 2-channel digital audio signal is accepted by the respective input.

Locking to either 48 or 96 kHz is indicated below. In this case, the sync source is input 2.

When both inputs are activated, either of them can be selected as sync source.

**Sync status messages**

<table>
<thead>
<tr>
<th>Message</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not locked</td>
<td>The digital input receiver (DIR) is not locked.</td>
</tr>
<tr>
<td>In sync</td>
<td>External clock OK. If D1/2 and D3/4 are used as Master/Slave, both clock signals (external/internal) are synchronous.</td>
</tr>
<tr>
<td>Sync error</td>
<td>If D1/2 and D3/4 are used as Master/Slave, both clock signals (external/internal) are not synchronous.</td>
</tr>
<tr>
<td>Syncing</td>
<td>The DSPs are synchronizing (transitional state).</td>
</tr>
<tr>
<td>Use SRC</td>
<td>The external clock is either 44.1 kHz or 88.2 kHz (in connection with SRC).</td>
</tr>
<tr>
<td>SRC</td>
<td>SRC is switched on.</td>
</tr>
</tbody>
</table>

**System clocking**

To keep latency as short as possible, the system does not utilize non-clocked (asynchronous) Sample Rate Converters (SRC).

The clock of the digital audio system is derived from an internal crystal oscillator with a sampling rate of 96 kHz. Alternatively, the clock can be derived from a signal fed to the digital inputs. The sampling rate of this signal must also be 96 kHz. The derived clock is PLL filtered to avoid possible jitter.

It is also possible to use a signal with a sampling rate of 48 kHz as it is in even proportion to the required 96 kHz. In this case, the system detects the sampling rate and automatically doubles it using a synchronous sampling rate doubler to achieve the required 96 kHz. The required filtering is calculated using linear phase FIR filters.
If the digital inputs are fed from two different sources with sampling rates other than 48/96 kHz, a Sample Rate Converter («SRC») can be enabled.

**Note:** Please note that this will result in a slightly increased basic latency $\Rightarrow \leq 1$ ms.

### 12.2.2 Input settings

Selecting «Input settings» at the bottom of the «Input» tab opens the corresponding subscreen.

The «Input settings» screen provides access to the following input related functions:
- Input monitoring (Mon)
- Input gain (Gain)
- Fallback
- Override

The on/off status of each function is indicated by change in color of the respective button from grey to blue or vice versa.

Below these buttons, there is a graphical presentation of the actual input routing.

#### 12.2.2.1 Input monitoring

Selecting «Input monitoring» from the «Input settings» menu opens the corresponding subscreen.

The d&b “Input monitoring” function enables the amplifier to monitor all signals, either from analog and/or digital signal sources, fed to the respective input («Input»). If one or several signals fail, a corresponding error can be generated and reported to the user or system.

At the signal source, an additional external pilot signal (sine wave signal) is added (summed) to the source signal.

Within the amplifier, this pilot signal can be detected («Mode» «Pilot») using an adjustable bandpass filter («Frequency»).

As long as the pilot signal is permanently and safely present within the given pilot band, this is an indication that the incoming signal path is faultless.

For this purpose, the amplifier determines the level of the pilot signal within the pilot band. The result is then compared with an adjustable reference threshold set by the user («Threshold»). If the level of the pilot signal falls below the reference threshold, a time-related error can be generated («Detection time»).

The pilot signal can be removed from the source signal (program signal) at any time using a notch filter («Notch filter»).
When the function is used with digital inputs, it is also possible to detect whether the device has locked to the digital source signal or not («Mode» = «Lock»).

Finally, the Input monitoring mode «DS data» permanently monitors the meta data information sent by a d&b DS-Series device and the «Fallback» function can be triggered if the Dante channel is not available on either the Primary or the Secondary network.

### Input monitoring settings

#### Input

Input selector (A1 - A4, D1 - D4).

#### Mode

Depending on the selected input (analog or digital), the following mode settings are available:

<table>
<thead>
<tr>
<th>Input</th>
<th>Mode</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1 - A4</td>
<td>Pilot</td>
</tr>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>D1 - D4</td>
<td>Yes</td>
</tr>
</tbody>
</table>

#### Input monitoring

Master On/Off switch with error LED indicator. The On/Off status as well as the error status are also displayed on the «Input settings» screen.

The error status is also indicated on the front panel ⇒ all Channel mute LEDs are flashing ⇒ .

#### Frequency

Center frequency of the pilot band, adjustable from 5 Hz to 24 kHz in 1 Hz or 0.01 Hz increments. The chosen increment is shown in light grey at the top right of the field.

When you select this field for the first time, the increment is set to 1 Hz.

To toggle between 1 Hz or 0.01 Hz increments, simply click the field again.

To confirm the chosen frequency, click any other field or the blank space next to the notch filter button.

**Note:** The set frequency also applies to the notch filter.

#### Threshold

Detection threshold for an external pilot signal of the set frequency, adjustable in the range from -117 dBu to +21 dBu in 1 dB increments.

At the bottom left of this field, the actual level is displayed in light grey while the set threshold is displayed at the bottom right.

Once a pilot signal is detected, the corresponding LED indicator at the top right illuminates green.
Device setup

**Quality**
The Q of the notch filter, adjustable from 4 to 42 in increments of 1. The center frequency is fully attenuated \(\Rightarrow -\infty\) dB.

**Detection time**
The maximum time interval that is allowed for an interruption of the monitored pilot signal or digital clock (Lock) without an error message being generated (0.1 ... 99.9 sec. in 0.1 sec. increments).

**Notch filter**
Notch filter to remove the pilot signal from the program signal. However, if activated, the notch filter remains active even if Input monitoring is set to Off.

### 12.2.2.2 Input gain
Selecting «Input gain» from the «Input settings» menu opens the corresponding subscreen.

An additional preamplifier stage (gain pot) is provided for each input channel, either analog or digital.

This allows either analog or digital audio sources to be directly connected to the respective amplifier input channels and presets their upstream gain ranging from \(-57.5\) dB to \(+6\) dB in steps of 0.5 dB.

By factory default the input gain is set to 0 dB.

At the bottom of the screen two buttons are located providing the following functions:

- **Input gain**
  - Master On/Off switch.
  - The on/off status is indicated by a change in color of the button from grey to blue or vice versa.

- **Clear**
  - All gain settings are reset to factory default (0 dB) while the function remains activated.

### 12.2.2.3 Fallback
The Fallback function enables the definition of primary (Regular) and secondary (Fallback) signal paths for analog and digital input signals with two different modes (Manual or Auto). This ensures that any secondary or emergency signal fed to the Fallback inputs is transmitted when required.

For this purpose, the input section is split in two logical groups:
- **Regular** signals only on input connector pair 1/2.
- **Fallback** signals only on input connector pair 3/4.

**Note:** The Fallback and Override functions can be used simultaneously. However, please note that in this case input 3 is no longer available as fallback input.
Selecting «Fallback» from the «Input settings» menu opens the corresponding subscreen.

**Off**
Disables the function.
The On/Off status is also displayed on the «Input settings» screen.

**Manual**
The desired signal path («Source») can be selected manually, either locally or via the Web Remote interface or via the d&b Remote network using R1.

**Auto**
To enable the automatic switch, Input monitoring («Mon») must be activated and correspondingly parameterized.
The desired signal path («Source») can be selected manually, either locally or via the Web Remote interface or via the d&b Remote network using R1.

After the Fallback function has been triggered, it can be reset manually by reactivating (selecting) the «Regular 1/2» input source.

This can be done either locally or via the Web Remote interface or via the d&b Remote network using R1.

When the Fallback function is activated, the Input routing screen is divided into two groups, «Regular» and «Fallback».

Regular inputs are always input pair 1/2, Fallback inputs are always input pair 3/4.

The white cross indicates which of the groups is currently active (as shown in the graphic opposite).

**Note:** Any input selected as Fallback input is disabled in the Input routing menu.

The Input routing settings are stored when the device switches to Fallback mode. When the Fallback mode is deactivated (either manually or automatically), the last Input routing settings defined are restored.

**Fallback (FB) and detection modes**
Input fallback automatically switches from the selected input source to another (Fallback) input source when either a digital (AES) sync signal (Lock) or a pilot signal (Pilot) or both of them are missing.
In conjunction with a Dante Audio Network, a fallback can also be triggered when a connected d&b DS-Series device detects that the Dante channel is not available on either the Primary and/or Secondary network (DS data).

The following Fallback (FB) and detection modes are supported:

<table>
<thead>
<tr>
<th>FB Mode</th>
<th>Input source</th>
<th>Detection</th>
<th>FB Input source</th>
</tr>
</thead>
<tbody>
<tr>
<td>A ⇒ A</td>
<td>A1/A2</td>
<td>Pilot</td>
<td>A3/A4</td>
</tr>
<tr>
<td>A ⇒ D</td>
<td>A1/A2</td>
<td>Pilot/Lock/DS data</td>
<td>D3/D4</td>
</tr>
<tr>
<td>D ⇒ A</td>
<td>D1/D2</td>
<td>Pilot/Lock/DS data</td>
<td>A3/A4</td>
</tr>
<tr>
<td>D ⇒ D</td>
<td>D1/D2</td>
<td>Pilot/Lock/DS data</td>
<td>D3/D4</td>
</tr>
</tbody>
</table>

**Examples:**
1. In Fallback mode A ⇒ A, an output channel routed to input A1/A2 will be fed by A3/A4.
2. In Fallback mode A ⇒ D, an output channel routed to input A1 will be fed by D3.
3. In Fallback mode D ⇒ A, an output channel routed to input D1/D2 will be fed by A3/A4.
4. In Fallback mode D ⇒ D, an output channel routed to input D1 will be fed by D3.

### 12.2.2.4 Override

The Override function is available for analog input A3 only.

The Override function allows analog input A3 to be set as a major signal path. When the function is activated, the input has the highest priority for general messages or emergency services.

When Override is activated, the analog input A3 is disabled on the Input routing screen and «Override» is displayed (flashing when active).
Selecting «Override» from the «Input settings» menu opens the corresponding subscreen.

**Off**
Disables the function. The On/Off status is also displayed on the «Input settings» screen.

**Manual**
The desired signal path «Source» can be selected manually either locally or via the Web Remote interface or via the d&b Remote network using R1.

**Auto**
With this mode selected, the analog input A3 is permanently monitored. As soon as the incoming signal level exceeds the defined threshold, input A3 will be opened depending on the set Attack time. All other channels will be muted (Gate + Ducking).

**Threshold**
Threshold level, adjustable from –42 dBu to +25 dBu in 1 dBu increments. At the bottom left, the actual level of the incoming signal is displayed in light grey. In addition, an LED indicator is provided at the top right. As long as the incoming signal level is below the set threshold, the LED illuminates yellow and changes to green as soon as the level exceeds the threshold.

**Attack**
Attack time, adjustable from 0.01 sec. to 1 sec. in 0.01 sec. increments.

**Hold**
Hold time, adjustable from 0 sec. to 10 sec. in 0.1 sec. increments.

**Release**
Release time, adjustable from 0 sec. to 10 sec. in 0.1 sec. increments.
12.3 Output

Selecting the «Output» tab allows you to assign the appropriate Output mode to a pair of amplifier output channels (AMP A/B and/or AMP C/D).

The following Output modes can be assigned to a pair of amplifier output channels (AMP A/B and/or AMP C/D):

- Dual Channel
- Mix TOP/SUB
- 2-Way Active
- Mixed configurations

A change of the Output mode must be confirmed. This is done by selecting either the Back or the Home button.

The set Output mode will be activated and the corresponding channels will be muted.

Note: Changing the Output mode directly affects the available range of loudspeaker setups.

On the Home screen, the selected Output mode is displayed in the header area below the device name.

The channel strips below the Header section change depending on the chosen modes as shown below.

On the bottom left of the Output screen, the «Speaker» navigation button provides direct access to the Speaker setup screen.
12.3.1 Output mode

**NOTICE!**

Ensure that the connected loudspeaker type corresponds to the actual output configuration of the 10D/30D.

**Dual Channel mode (A/B, C/D)**

The Dual Channel mode is dedicated to d&b fullrange systems (passive systems) and actively driven d&b subwoofers. Both channels of each pair of amplifier channels can be configured for TOP or SUB cabinets independently.

In Dual Channel mode each pair of amplifier output channels (AMP A/B, AMP C/D) acts as a two channel amplifier (stereo amplifier). The amplifier channels are connected to their corresponding output connectors (AMP A to OUT A ...) while the audio input for each amplifier channel can be assigned via the input routing.

**Pin assignment**

SPEAKER OUTPUTS A (B, C, D):
- + = Amp A (B, C, D) pos.
- − = Amp A (B, C, D) neg.

**Mix TOP/SUB mode (A/B MIX, C/D MIX)**

The Mix TOP/SUB mode is dedicated to d&b fullrange systems (passive systems) and actively driven d&b subwoofers.

TOP cabinets (setups) can be selected on channel A (C) and SUB cabinets (setups) on channel B (D) while the audio input for each amplifier channel can be assigned via the input routing.

**Pin assignment**

SPEAKER OUTPUTS A/B (C/D):
- + = Amp A (C) pos. (TOP)
- − = Amp A (C) neg. (TOP)
- + = Amp B (D) pos. (SUB)
- − = Amp B (D) neg. (SUB)

**2-Way Active mode (30D only)**

The 2-Way Active mode is dedicated to d&b active systems.

All settings of channel A (C) and the corresponding input signal are internally linked to channel B (D).

**Pin assignment**

SPEAKER OUTPUTS A/B (C/D):
- + = Amp A (C) pos. (LF)
- − = Amp A (C) neg. (LF)
- + = Amp B (D) pos. (MF/HF)
- − = Amp B (D) neg. (MF/HF)
**Mixed configurations**

As the output mode is assigned to a pair of amplifier channels (AMP A/B, AMP C/D) mixed configurations such as:

- AMP A/B ⇒ Dual Channel, AMP C/D ⇒ 2-Way Active
- AMP A/B ⇒ Dual Channel, AMP C/D ⇒ Mix TOP/SUB
- AMP A/B ⇒ Mix TOP/SUB, AMP C/D ⇒ 2-Way Active

... as well as all other combinations are also possible.

---

**Mixed configuration example**

AMP A/B ⇒ Dual Channel, AMP C/D ⇒ 2-Way Active
12.4 Remote
Selecting the «Remote» tab allows you to assign remote settings for both Ethernet and CAN remote control.

12.4.1 IP settings
Selecting the navigation field «IP settings» enters the corresponding subscreen. In addition, the «IP mode» is displayed at the bottom right of the navigation field.

IP mode
Selecting this field enables the following settings:

**Manual**
Allows the manual assignment of IP settings.

**DHCP+FB**
When the device is connected to a network with a DHCP server present, a matching IP address is assigned automatically.

If no DHCP server is present on the network, the IP will fall back (FB) to the manual IP addressing. If a DHCP server becomes available later, an IP address will be automatically assigned later.

**DHCP+LL**
IP mode for using Link-Local addressing.

When a DHCP server is present, the IP address is assigned automatically by that server. If this fails, an address will be assigned automatically using the Link-Local address in the range from 169.254.0.1 to 169.254.255.254. All devices in a local network will ensure that their IP addresses are unique. After the Link-Local configuration is completed, a fully functional network will be available. If a DHCP server is available later, an automatic IP will be automatically assigned later.

Link-Local addressing is the default behavior of every PC and MAC computer when no DHCP server is present. The DHCP+LL setting enables the amplifier to also work in a setup without a DHCP server. A fully functional local network including remote control from a PC or Mac via R1 will be set up automatically.
Device setup

**IP address**: Provided the IP mode is set to «Manual», selecting either field opens an numerical input mask and allows you to enter the relevant data.

**IP mask**: Wrong entries can be corrected by clicking the erase button \(\text{[erase]}\) on the bottom right.

**IP gateway**: Clicking «OK» on the top right confirms the entry, closes the input mask and switches back to the «Remote» screen.

**Set gateway to default**: Clicking the Back button \(\text{[Back]}\) on the top left cancels any entry and switches back to the «Remote» screen keeping the previous entry.

### Additional information fields

**MAC**: Displays the fixed MAC address of the device.

**Conn.**: Shows which of the etherCON connectors is connected (busy).

**Status**: Provides status information on the network.

#### 12.4.2 Remote ID

Selecting the «Remote ID» button allows the setting of the unique Remote identifier of the respective device in the format \([nn].[nn]\).

**Subnet**: The first two digits represent the subnet.

- **Ethernet network**: up to 100 subnets can be defined (values 0 to 99).
- **CAN network**: up to eight subnets can be defined (values 0 to 7).

**Note**: In case of a Subnet mismatch the following message is issued at the bottom of the screen:
- Remote ID exceeds 7.63, CAN disabled!

**Device ID**: Using the two digit Device ID for each subnet, you can define a total of 63 devices (values 1 to 63).
12.5 More
Selecting the «More» tab provides further subscreens such as:
- Preferences
- Info
- Levels
- GPIOs
- ...

12.5.1 Preferences
Selecting «Preferences» opens the corresponding subscreen with the «Display» tab being active.

12.5.1.1 Display
The «Display» tab allows the status LED indicators to be switched 'Off' or back 'On' again by selecting the «LED mode» button.

12.5.1.2 Lock
As 10D/30D amplifiers are only accessible via the Web Remote interface or R1 V2, the «Lock» function is not applicable.
12.5.1.3 Preferences/More
Selecting the «More» tab opens the corresponding subscreen which provides the following options.

**Buzzer**
The internal buzzer serves as an acoustic signal in case of a device or channel error.

The following settings can be enabled:

- **Off** The internal buzzer is switched off.
- **On** The internal buzzer is switched on and generates an intermittent sequence of two equal tones.
- **Single** The internal buzzer generates an intermittent single tone.
- **Melody** The internal buzzer generates a predefined intermittent sequence of tones.

**Set clock**
Enables setting the internal clock while the current UTC (Coordinated Universal Time) date and time are displayed at the bottom of the screen.

Within a Remote network, the device's clock is synchronized with the connected PC.

12.5.1.3.1 System reset
Selecting «Clear all device settings to default» resets all device settings to factory defaults except for the network (CAN/Ethernet) and fixed device settings.

To prevent accidental reset when you click the «Clear...» button, a dialog will pop up prompting you to confirm the reset or cancel the sequence by clicking the Back button [ ].
Alternative procedure
A system reset can also be triggered as follows:

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

1. Switch off the device.
2. Press and hold the RESET button using an appropriate pen and repower the device.
   - Long confirmation beep.
3. Release the button and briefly press the button again within 2 sec.
   - Short confirmation beep. The device will boot up.

Reset of remote settings
If remote settings are missing or if you have forgotten some settings, such as Remote ID and/or IP settings, these settings can be reset to factory default separately without affecting any other device settings. For this purpose, proceed as follows:

1. During normal operation, press and hold the RESET button for 5 sec.
   - Long confirmation beep.
2. Release the button and briefly press the button again within 2 sec.
   - Short confirmation beep.
   The remote settings will be reset to factory default.

12.5.2 Info
Selecting «Info» provides basic information about the device.

The information provided is mainly intended for service purposes.

Most of the information is static information, for example:
- Various firmware versions (Firmware Core/DSP/PS/AMP)
- Serial number
- Owner

In addition, there is dynamic information about the actual temperatures of...
- Power supply (Temp. PS)
- The entire power amplifier (Temp. AMP)
- Central Processing Unit (Temp. CPU)

Selecting the «Hardware» button provides further hardware specific information.
### 12.5.3 Levels

Selecting «Levels» opens the corresponding subscreen.

The data area of the levels screen provides the following information (starting at the top left):

| 1st line | Mute status of each channel. |
| 2nd line | Loudspeaker setups selected for the individual channels. |
| Input   | Actual input signal levels of the individual channels. |
| Output  | Actual output voltages of the individual amplifier channels. |

#### Gainred/Headr

Relationship between headroom (Headr) and gain reduction (Gainred) with peak hold for 1 sec.

Display ranges:

- **Gainred**: 0 dB ⇒ +32 dB.
- **Headr**: -32 dB ⇒ 0 dB.

#### Impedance

Actual load impedance values for the individual amplifier channels.

#### Power

Power actually delivered by the individual amplifier channels.

#### Temperature

Actual temperatures of each pair of amplifier channels.

#### ISP/OSP

Indicates whether the input signal (ISP) as well as the amplifier output signal (OSP) of the individual channel are present.

#### GR/OVL

Indicates whether gain reduction (GR) of the respective channel is active or the respective channel is overloaded (OVL).

#### Mains/SMPS

Displays the actual mains voltage and frequency and a power limiter LED is provided.
### 12.5.4 GPIOs (Configuration)

Selecting «GPIOs» opens the corresponding subscreen.

Within the «GPIOs» subscreen, three input fields are provided. Selecting the respective input field allows you to configure each GPIO contact individually.

**GPIO**
- Defines the corresponding GPIO contact.
- **Mode**
  - Trigger/switching behavior of the corresponding GPIO contact. It can be configured to be input or output and it can be combined with either level (non-latching) or edge (latching) triggering, as detailed below.

**Function**
- Assigns the corresponding function (Object).

**In/Out**
- Depending on the selected GPIO mode (Input/Output), the object list will change correspondingly, as detailed below.

Below the input fields, all GPIOs, their assigned «Mode» and «Function» and their «Status» are listed.

### GPIO Mode

- **Off**: The corresponding GPIO contact is disabled.
- **Input, level, lo**: Level triggered - Lo active
- **Input, level, hi**: Level triggered - Hi active
- **Input, edge, rising**: Edge triggered - rising
- **Input, edge, falling**: Edge triggered - falling
- **Output, level, NO**: Level triggered - normally open (NO)
- **Output, level, NC**: Level triggered - normally closed (NC)

**Output, manual**: Manual operation (hand control). Mainly intended for test purposes. The «Function» input field will become a switch («GPIO Set») to manually switch the corresponding GPIO relay.

### GPIO Function

#### In:
- Display only
- Mainly intended as Debug function. Displays the status of the respective GPIO without any assignment to Objects or Presets.
- Power on
- Channel mute (Mute Ch A ... Mute Ch D, Mute all)
- AmpPreset 1 ... 15
- Input Fallback/Input Override

**Note**: In connection with GPIOs both Fallback and Override are only functional when set to «Manual» mode.

#### Out:
- Power OK
- Mains Voltage OK
- Channel error: Ch A Error ... Ch D Error, Error Ch any (cumulative output)
- Channel protection: Ch A Protection ... Ch D Protection, Protection Ch any (cumulative output)
- Internal Error

Indicates an internal error of the device which causes an interruption of the audio signal. Explicitly excluded are "Load monitoring, System check and Overvoltage or Undervoltage" conditions/states.

<table>
<thead>
<tr>
<th>GPIO Mode</th>
<th>Function</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Input, level, hi</td>
<td>Amp Preset 1</td>
<td>![Status Icon]</td>
</tr>
<tr>
<td>2 Input, level, hi</td>
<td>Amp Preset 7</td>
<td>![Status Icon]</td>
</tr>
<tr>
<td>3 Output, level, NO</td>
<td>Power OK</td>
<td>![Status Icon]</td>
</tr>
<tr>
<td>4 Output, level, NC</td>
<td>Power OK</td>
<td>![Status Icon]</td>
</tr>
<tr>
<td>5 Output, manual</td>
<td>--</td>
<td>![Status Icon]</td>
</tr>
</tbody>
</table>

GPIO 2: Preset invalid
Three status LEDs are provided indicating the following states:

The first LED indicates the status of the GPIO.
For Inputs the logical status and for Outputs the status of the relay.
- For outputs, the logical status is "1" (●) when the relay is closed.
- For edge triggered inputs, the internal Object/AmpPreset states are the same as the GPIO status and vice versa.
- For level triggered inputs, the GPIO status is defined by the external voltage applied.

The second LED indicates the status of the related Object (binary object) or AmpPreset.
Objects/AmpPresets and GPIOs are evaluated separately.
- For Objects, the logical status is "1" (●) when the Object is logical "1" (binary object).
- For AmpPresets, the logical status is "1" (●) when the AmpPreset is loaded and not modified.

The third LED illuminates as soon as an error has occurred (●).
Provided the corresponding GPIO is selected, a corresponding message will be issued on the bottom left of the GPIO screen.
12.5.5 AmpPresets

d&b amplifiers provide AmpPresets which contain all important user settings of the entire device, such as input, output and channel configurations, EQ and delay settings.

Using AmpPresets, a sound system can be operated in different configurations (e.g. "Conference", "Music" or "Emergency Call") without the need of transferring all detailed settings of the devices used.

There are three types of AmpPresets memories (slots):

**User:** Nine AmpPresets which can be accessed locally or via the d&b Remote network. These presets are used to set the complete device to a previously defined configuration for a particular application. They can be named individually.

**Alarm:** Three AmpPresets which can only be accessed via the d&b Remote network and/or GPIOs. Intended for use in alarm systems to protect the system settings against local modifications.

**Backup:** Three AmpPresets which can only be accessed via the d&b Remote network and/or GPIOs. Intended for temporary use to back up the current system settings when another AmpPreset is loaded.

Selecting «AmpPresets» opens the corresponding subscreen which provides the functions «Select», «Name», «Recall», «Store» and «Clear».

At the bottom of the screen, the last AmpPreset number loaded is indicated. If any setting has been modified since loading, «(modified)» will be added to the corresponding entry.

**Select:** Provides access to the nine (9) user preset memories (slots) for loading, saving or clearing data.

**Name:** Enables the assignment or editing of a preset name (maximum of 15 characters). The input mask which appears allows either lower-case or upper-case characters by toggling the corresponding button «(abc)» on the bottom left.

- Wrong entries can be corrected by selecting the Erase button («X») on the bottom right.
- Selecting «OK» on the top right confirms the entry, closes the input mask and switches back to the AmpPresets screen.
- Selecting the Back button («K») on the top left cancels any entry and switches back to the AmpPresets screen keeping the previous entry.
Recall: Recalls the settings of a stored preset.

Store: Stores the current amplifier settings to the selected preset memory.

Clear: The selected preset memory is cleared and «(empty)» is displayed on the «Name» button.

Note: Choosing one of these functions, a corresponding confirmation dialog will be issued to allow either confirmation of the selection or to cancel the action by selecting the Back button.

12.5.6 Scope
The «Scope» function allows basic signal monitoring of the amplifier's output voltage (full color) and output current (light color).

Select
- A U, I: Output voltage and current of channel A.
- B U, I: Output voltage and current of channel B.
- C U, I: Output voltage and current of channel C.
- D U, I: Output voltage and current of channel D.
- All U: Output voltage of all channels.
- All I: Output current of all channels.
- All U, I: Output voltage and current of all channels.

Y scale
Scale of the measuring values in FS (Full Scale). 1.0 FS represents the maximum output voltage or output current.

Application examples
The scope function is a useful tool for:
- determining the signal quality.
- determining a phase shift between the channels.
- getting a rough impression of the crest factor.
- checking the output channels (e.g. no output current displayed ⇒ the connector cable may be interrupted or no loudspeaker is connected).
- checking the power amplifier (e.g. no output voltage displayed).
12.5.7 AutoStandby

Selecting «AutoStandby» opens the corresponding subscreen with the «Settings» tab being active.

The AutoStandby function automatically switches the amplifiers to Standby mode after a predefined time when the incoming signal level at the individually specified inputs drops below a defined threshold. The function is independent of the mute status of the respective channels.

The AutoWakeup function automatically repowers the amplifier within 5 seconds when an input signal is present and exceeds a defined threshold.

**Note:** The AutoWakeup function only applies to the digital inputs.

**Settings tab**

**Mode**
- **Off:** Disables the function.
- **AutoStandby:** Enables the function. When the function is activated, the device will switch to Standby mode after the predefined time.
- **AutoStandby&AutoWakeup:** Enables the function. When the function is activated, the device will switch to standby mode after the predefined time and will be repowered within 5 seconds when an input signal is present and exceeds the defined threshold.

**Time to standby**
Time (count down), adjustable from 1 min. to 24 h. in 1 min. increments.

**Threshold**
Threshold for the AutoWakeup function, adjustable from -140 dBu to +25 dBu in 1 dBu increments.

**Remaining time to standby**
Non-editable information field. In addition to the count down of the remaining time, various status details are displayed depending on the given settings.

**Inputs tab**
When the AutoWakeup function is enabled, the corresponding inputs that will be monitored for incoming signals can be specified.
Channel setup access chart
Hierarchy level

Channel setup

Channel name

Input mask

Device setup

Input mode
- Input
- Remote
- More

Input settings
- Input monitoring
- Input gain
- Fallback
- Override

Filter 1 2 3

Level

Delay

EQ

Input routing

System check/LM

Speaker

Channel linking

Freq. gen.

EQ1

Array Processing

LoadMatch

EQ2
Channel setup

Selecting a particular channel from the Home screen opens the corresponding Channel setup screen with the respective Channel tab being active.

The Channel setup screen follows the same layout structure as described above and is split into the Header and the Data sections.

Using the tabbed structure of the Channel setup screen provides direct access to the desired function element of each channel.

In addition, the «Channel mute» button of the selected channel as well as the "OSP", "GR" and "OVL" indicators for each channel are available. This allows you to maintain the integrity of the gain structure within the unit while setting up the user definable EQ as well as keeping an eye on the Input routing.

13.1 Channel name

Selecting the centered Information field button («Edit channel name») in the header of the Channel setup screen enables you to enter or edit the Channel name (maximum length 15 characters).

The input mask which appears allows either lower-case or upper-case characters by toggling the corresponding button («abc») on the bottom left.

Wrong entries can be corrected by clicking the Erase button on the bottom right.

Clicking «OK» on the top right confirms the entry, closes the input mask and switches back to the channel setup screen.

Clicking the Back button on the top left cancels any entry and switches back to the Channel setup screen keeping the previous entry.
13.2 Configuration switches - Filter_1, _2, _3

The type of filters available depends on the selected loudspeaker setup.

Depending on the type of filters, these are available as function buttons or input fields.

The name of the filter is displayed on the top left of the button or field while the On/Off status or the value is displayed on the bottom right. In addition, the On/Off status is also indicated by colors.

<table>
<thead>
<tr>
<th>Filter_1</th>
<th>Filter_2</th>
<th>Filter_3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Configuration of crossover frequencies for TOP/SUB, e.g. CUT, 100 Hz, Infra ...</td>
<td>Compensation of listening distance, e.g. HFA, HFC. HFC: Off, +1 (HFC1), +2 (HFC2). CSA: Cardioid Subwoofer Array.</td>
<td>CPL ⇒ Array-EQ (compensation of coupling effects) CPL range: −9 dB ... 0 dB (Off): Cut (Lo shelf) 0 dB (Off) ... +5 dB: Boost (65 Hz, Bell)</td>
</tr>
</tbody>
</table>

Note: CUT in LINEAR setup:
- Butterworth 2nd order (12 dB/oct.)
- Corner frequency: 110 Hz
- Amplifier gain @ 0 dB: 31 dB.

On the Home screen, the On/Off status or the set values of the Configuration switches are indicated by the entry on the Channel view button of the corresponding channel strip, as shown in the graphic opposite.

Note: A detailed description of the filters available for each loudspeaker is given in the relevant loudspeaker manuals. A detailed description of the CSA function (Cardioid Subwoofer Array) is given in the technical information TI 330 which can be downloaded from the d&b website at www.dbaudio.com.

13.3 Level

Input sensitivity of the respective power amplifier channel or set of channels (depending on the output mode), adjustable within a range of −57.5 dB to +6 dB in steps of 0.5 dB.
13.4 EQ - Equalizer

Selecting «EQ» opens the equalizer subscreen of the respective channel.

The graphic opposite shows the location of the equalizer (User EQ) within the signal chain.

The equalizer provides two independent and user definable 16-band equalizers (2 x 16 minimum phase biquad IIR filters, full parametric) and is split into two layers:

⇒ EQ overview,
⇒ EQ layer/curve.

**EQ overview**

The upper part of the overview provides the overall frequency response of all filters while «EQ 1» is displayed in red and «EQ 2» in yellow.

Active filters are displayed by continuous lines and the curves are filled with grey color while inactive filters are displayed by dashed lines.

The bottom part of the overview provides the following functions:

**EQ [n]**

Master On/Off switch for the respective EQ.

On the Home screen, the On/Off status of the equalizer is indicated by the entry «EQ» on the «Channel view» button of the corresponding channel strip, as shown in the graphic opposite.

**Edit**

Opens the corresponding subscreen (EQ layer/curve) for editing.

**Clear...**

Resets all filter settings of the corresponding EQ.

To prevent accidental reset when you click the «Clear...» button, a dialog will pop up prompting you to confirm the reset or cancel the sequence by clicking the Back button.

**Copy/Paste**

Allows the entire EQ settings of one channel to be copied/pasted to any other channel.

To do so, proceed as follows:
1. Select the channel EQ you want to copy.
2. Select «Copy».
   ↳ The «Paste» button becomes accessible.
3. Select the channel to which you want to paste the EQ settings.
4. Select «Paste».

**EQ layer/curve**
Apart from the overall frequency response, the following functions and status indicators are provided:

**Header section**

**EQ [n] - On/Off**
On/Off status of the corresponding EQ.
This field also acts as On/Off switch for the respective EQ.

**Data section**
Line by line from left to right:

**Band selector**
Allows the selection of a filter band from the Filter band bar using the «Value +/-» buttons.

**Filter band bar**
Displays all filter bands that are in use while the number of remaining filter bands is indicated next to the bar on the right.

**Band On/Off**
Switches the selected filter band on or off.

**Type**
Depending on the filter type used, 1 to 4 bands may be required for each filter.
The following table lists the available types, their corresponding parameters and the number of filter bands required for the selected type.
### Channel setup

<table>
<thead>
<tr>
<th>Type</th>
<th>Param. 1</th>
<th>Param. 2</th>
<th>Param. 3</th>
<th>Param. 4</th>
<th>Param. 5</th>
<th>No. of filters</th>
</tr>
</thead>
<tbody>
<tr>
<td>PEQ (Parametric EQ)</td>
<td>FRQ</td>
<td>Q (and corresponding bandwidth - BW)</td>
<td>Gain</td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>Notch</td>
<td>FRQ</td>
<td>Q (and corresponding bandwidth - BW)</td>
<td></td>
<td></td>
<td></td>
<td>1</td>
</tr>
<tr>
<td>HiShlv</td>
<td>FRQ</td>
<td>Slope</td>
<td>Gain</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>LoShlv</td>
<td>FRQ</td>
<td>Slope</td>
<td>Gain</td>
<td></td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>Asym (Asymmetric filter)</td>
<td>FRQ 1</td>
<td>Slope 1</td>
<td>Gain</td>
<td>FRQ 2</td>
<td>Slope 2</td>
<td>4</td>
</tr>
</tbody>
</table>

**Parameter ranges and resolutions:**

**Type**

The available filter types.

**FRQ**

Filter frequency (center/corner frequency), adjustable from 20 Hz to 20 kHz.

On the top right of the «Frequency/FRQ» input field, the increment is displayed as an octave value. When you click the field for the first time, the frequency increment is set to 1/6 octave. When you click the field again, you can toggle between 1/6 and 1/96 octave increments.

To confirm the set frequency, click the input field again.

**Q**

Q of the filter, adjustable from 0.5 ... 25 in 10 % steps.

In addition, the resulting bandwidth (BW) is displayed as a value (2.0 ... 0.04 octaves) in a non-editable Information field below the Q input field.

**BW**

Slope can be set to 6, 12, 18 or 24 dB/octave.

**Gain**

Gain, adjustable from -18 dB to +12 dB in 0.2 dB steps.

**Clear band**

 Resets all settings of the selected filter band right away.
13.5 DLY - Delay
An independent signal delay is available for each channel to allow delay settings of up to 10000 ms/10 sec (3440 m/11286 ft).

**DLY On/Off**
Switches the delay on or off without affecting the entered delay values. Set to "On" the applied value will be set right away.

**Value**
The delay time is adjustable from 0.3 to 10000 ms in steps of 0.1 ms or a corresponding value depending on the units selected.

**Unit**
Enables selection of the delay units, either milliseconds [ms], meters [m], feet [ft] or seconds [s].
A change in the units will be applied to all channels.

On the Home screen, the "On" status of the delay is indicated by the set value and unit on the Channel view button of the corresponding channel strip, as shown in the graphic opposite.

13.6 Input routing
Selecting «Input routing» opens the corresponding subscreen.

The input sources can be selected individually per amplifier channel or pair of amplifier channels (depending on the output mode setting).

Analog and digital inputs can be combined.

The Input routing screen also provides direct access to the ⇒ «Input mode» screen.
Channel setup

DS labels

Selecting the «DS labels» button opens the «DS labels» subscreen. In connection with d&b DS devices, meta data such as Dante channel labels and cabling information are sent via the AES3 outputs alongside the digital audio samples using the AES3 User bits.

These meta data can be read out by the amplifier and displayed on this screen. The screen is split into three columns and the following information is provided for each of the digital inputs D1 - D4:

<table>
<thead>
<tr>
<th>D[n]</th>
<th>PRI</th>
<th>SEC</th>
<th>Out [n]/[n+1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tx label@Tx Device</td>
<td>DS device name</td>
<td>DS rx label</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>D [n]</th>
<th>PRI/SEC</th>
<th>Tx label@Tx Device</th>
<th>DS device name</th>
<th>DS rx label</th>
<th>Out[n]/[n+1]</th>
</tr>
</thead>
<tbody>
<tr>
<td>D1</td>
<td>PRI</td>
<td>Main R@FoH</td>
<td>DS10 Stage R</td>
<td>Front - Output 1</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SEC</td>
<td>&quot;DS10-Stage R&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Main L&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;Main R&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>&quot;FoH&quot;</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Example

A simple example is shown in the graphic opposite. The stream labels are stated in inverted commas. The corresponding labels and their locations on the screen are listed in the table below.

<table>
<thead>
<tr>
<th>D1</th>
<th>PRI</th>
<th>SEC</th>
<th>Out 1/2</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PRI</td>
<td>SEC</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Main R@FoH</td>
<td>DS10 Stage R</td>
<td>Front - Output 1</td>
</tr>
</tbody>
</table>
13.7 System check/LM

13.7.1 System check

System check is a powerful and convenient tool to check the condition of a complete d&b sound reinforcement system driven by d&b amplifiers. It is preferably used in conjunction with the d&b Remote network and the R1 software.

However, for smaller systems or single cabinets, System check can also be accessed and executed locally.

System check utilizes the amplifier’s capability to measure the impedance (Z) connected to its outputs using a sine wave signal created by the DSP section of its controller.

Selecting «System check» opens the corresponding subscreen.

System check menu

The System check menu provides two buttons to start either a «System calibration» or a «System check» run.

In addition, a table is provided indicating the progress («Status») and the results (Z values) for both the calibration («Calib.:») and the check («Check:») runs.

The column header of the table for the Z values changes according to the connected loudspeaker cabinet, provided the respective loudspeaker setup is loaded.

- **Status**: Brief indication of the current status of the calibration or check process. In case of an error the status is indicated in red.
- **LF**: The calibration and check results for the LF section.
- **LF(R)**: The calibration and check results for the rear LF driver of an actively driven cardioid subwoofer, such as the J-SUB or J-INFRA.
- **MF**: The calibration and check results for the MF section of applicable cabinets.
- **HF**: The calibration and check results for the HF section.

System check procedure

The typical procedure using System check is as follows:

1. When the system is fully set up, check and verify all connections.
2. Mute all amplifier channels.
   - The correct wiring of the system can now be tested by listening to each channel separately using an appropriate audio program and the MUTE switches - preferably controlled by R1.
3. As a next step, execute a **System calibration**.
   - The calibration process identifies the actual load impedances for each channel. The result will be stored as a reference and used to calculate the upper and lower limits for the tolerance band.
   - To verify the correct connection of cabinets and amplifiers, the calibration result can be compared with the typical impedance values for d&b loudspeakers as listed in the 
     ⇒ Appendix: "Typical impedance (Z) values" on page 83.
4. Run System check

Executing a System check after the event will repeat the measurement and display all values that are outside of the tolerance band, indicating a possible damage to the system components.

When a system is repeatedly used in the same configuration for which a calibration file exists, the System check procedure can also be used before the show to verify the system’s correct setup.

A System check will only provide valid impedance values, if the amplifier has been calibrated before the check with the load connected or if a valid calibration file has been loaded using R1.

13.7.2 Load monitoring (LM)

Features
The d&b Load monitoring function is related to the System check function and serves to identify a possible loudspeaker malfunction.

Function
The calibration process, performed from the System check menu with the system fully set up, determines the impedance for each channel and calculates the related upper and lower impedance limits.

While the system is operating, d&b Load monitoring continuously monitors the load impedance separately for both frequencies. It detects any changes in loudspeaker impedance and reports an error if the limits are exceeded. For this purpose, Load monitoring uses inaudible pilot signals which are faded in for approximately 5 seconds in user defined intervals.

NOTICE!
The resolution of Load monitoring regarding failures of single components depends on the type and the number of loudspeakers connected to each channel.

The maximum number of cabinets which can be operated in parallel by one amplifier channel in order to be able to detect a failure of a loudspeaker component is listed in the Appendix: "Max. number of cabinets operated in parallel" on page 85.

Load monitoring does not work if:
- the amplifier is switched off or switched to standby mode.
- the respective channel is muted.
- the pilot signal level is too low.
Load monitoring setup

On the «System check» screen, selecting «LM setup» opens the corresponding subscreen.

The «Load monitoring setup» menu provides all relevant parameters for adjustment to the on-site requirements.

**Load monitoring On/Off**
Activates Load monitoring. The On/Off status is also indicated on the System check and Channel setup screens.
Once a fault has occurred, switching off Load monitoring will also reset the error and error message.

**LM Period**
The maximum time it takes the system to detect a loudspeaker malfunction. The intervals of the pilot signal are derived from this parameter.
The time can be set in a range from 40 to 1000 sec. in 40 sec. detents.

**LM Threshold**
Large signal threshold. When the output signal exceeds this voltage level during the measurement, the tolerance limits for this particular measurement are increased in order to compensate for the reduced accuracy.

**zMin tolerance**
Lower limit of the impedance window, which is set to –20 % by default.

**zMax tolerance**
Upper limit of the impedance window, which is set to +30 % by default.

**Dev.:**
Relative deviation in percent in relation to the reference values determined during calibration.

13.8 Speaker

Selecting «Speaker» opens the Speaker setup subscreen which enables the selection of loudspeaker setups for the applicable d&b loudspeakers (depending on the selected output mode).

The setups available are arranged in two blocks, «Series» and «Speaker».

**Back**
The Back button provides two options:
1. The selection has not been confirmed by clicking «OK» ⇒ Cancel:
   Exits the subscreen and the previous configuration remains active.
2. The selection has been confirmed by clicking «OK»:
   Exits the subscreen.

**Series**
The bottom left of the «Series» Input field displays the number of setups available while the bottom right displays the actual name of the Series.
The list is in alphabetical order, the starting point, however, is the Series currently loaded.
Selecting «(All)» provides direct access to all setups available and the LINEAR setup.
**Speaker**

The bottom left of the «Speaker» input field displays the version of the selected loudspeaker setup while the bottom right displays the actual setup name.

The loudspeaker list is either in numerical or alphabetical order depending on the selected series.

When «(All)» is selected in the «Series» field, the list starts with the numeric setup names followed by the remaining setup names in alphabetical order. The starting point, however, is the setup currently loaded.

**OK**

Selecting «OK» adjacent to the «Speaker» selection field confirms the configuration and the selected setup will be activated.

**Clear...**

To prevent accidental reset when you click the «Clear...» button, a dialog will pop up prompting you to confirm the reset or cancel the sequence by clicking the Back button.

Selecting the «Clear...» button clears/resets the following loudspeaker related settings of the respective channel.

- Configuration switches (Filter_1, Filter_2, Filter_3) are reset.
- Level is set to 0 dB.
- Delay settings are reset (the selected unit will be kept).
- All EQ settings are disabled.

**Array Processing**

For applicable loudspeakers, the «ArrayProcessing» button becomes functional. It indicates the On/Off status of the function and provides direct access to the ArrayProcessing subscreen, which is described in Chapter 13.8.1 "ArrayProcessing" on page 71.

**Note:** ArrayProcessing does not apply to all loudspeakers. When the function is not applicable, this button is not functional.

**LoadMatch**

For applicable loudspeakers, the «LoadMatch» button becomes functional. It indicates the On/Off status of the function and provides direct access to the LoadMatch subscreen which is described in Chapter 13.8.2 "LoadMatch" on page 72.

**Note:** LoadMatch does not apply to all loudspeakers. When the function is not applicable, this button is not functional.
13.8.1 ArrayProcessing

Usually ArrayProcessing (AP) data are generated within the ArrayCalc software and transferred to the amplifiers via the d&b Remote network (OCA) using R1.

However, once the ArrayProcessing data have been transferred to an amplifier remotely, each data slot may also be accessed locally.

**AP slot**

Selection field for each memory slot.

*Note:* The first slot (1) is reserved as a bypass slot.

Below the selection field, the slot name and version are displayed together with the comment for the slot that was previously entered in ArrayCalc.

In addition, the selected slot is indicated on the respective channel strip on the «Home» screen.

**Clear all slots**

Resets all slot data.

**HF Trim (HFT)**

As part of the ArrayProcessing feature, the HF Trim (High Frequency Trim) option allows you to trim the HF of a processed array due to changing air absorption conditions in the far field areas during a show.

The «HF Trim» option only becomes accessible when the «AP» setup of the relevant cabinets is loaded. HF Trim can be activated from the respective channel screen and can be set locally or via the d&b Remote network using R1. However, HF Trim will usually be applied for grouped cabinets within R1.

- **Off**
  - No additional target distance.
- **+1/+2**
  - 10% (+1) or 20% (+2) additional target distance for each source.

  The compensation is limited to an absolute additional distance of 30 m (100 ft).

On the Home screen, the On/Off status and the setting of the HF Trim option is indicated by the entry «HFT[n]» on the «Channel view» button of the corresponding channel strip, as shown in the graphic opposite.
13.8.2 LoadMatch

Selecting «LoadMatch» on the Speaker setup screen opens the corresponding subscreen.

⇒ To activate LoadMatch, click the On/Off button on the left next to the «Cable length» input field.

For applicable loudspeakers, the d&b LoadMatch function enables the amplifier to electrically compensate for the properties of the loudspeaker cable used. This function, which covers a bandwidth of up to 20 kHz, preserves the tonal balance when cable lengths of up to 70 m (230 ft) are used.

LoadMatch does not require an additional sense wire and is therefore applicable with any connector type used.

To provide optimum compensation, LoadMatch requires the entry of the following three parameters:

**Cable length**  
Length of the cable in meters in steps of 5 m.

⇒ The corresponding length in "ft" is displayed on the bottom left of the input field.

**Speaker count**  
Number of cabinets connected.

**Cross-section**  
Cross section in square millimeters (mm²) in steps of 0.5 mm² up to a maximum of 10.0 mm².

⇒ The corresponding "AWG" value is displayed on the bottom left of the input field.

⇒ The resulting cable impedance is shown as an ohmic value in the «Cable impedance» information field underneath.

**Maximum gain reached**  
Depending on the LoadMatch settings, the message «Maximum gain reached» indicates the limit up to which the LoadMatch function works.
13.8.3 LINEAR setup
In addition to the loudspeaker specific setups, a LINEAR setup is also available allowing the 10D/30D to be used as a linear power amplifier.

**Note:** CUT in LINEAR setup:
- Butterworth 2nd order (12 dB/oct.)
- Corner frequency: 110 Hz
- Amplifier gain @ 0 dB: 31 dB.

13.9 Channel linking
Selecting «Channel linking» opens the corresponding subscreen.

Provided the amplifier's output mode is set to Dual Channel and/or Mix TOP/SUB mode, the «Channel linking» function allows either channel EQ and/or Delay settings to be linked.

There are four direction modes:
- A Þ B
- A Þ BC
- A Þ BCD
- C Þ D

The linked functions can then be controlled from the «Channel» menu of channel A and/or C, while these functions are disabled in the «Channel» menus of channels B and D.

When choosing either «A Þ BC» or «A Þ BCD», the «Link C» function is disabled (set to «Off»).

However, when activating «Link C» while «Link A» is set as described above, the «Link A» function is disabled correspondingly.

In the «Channel» menu, this status is indicated by a horizontal eight («¥»), as shown in the graphic opposite.

The On/Off status of the link function is indicated in the respective channel menu, as shown in the graphic opposite.

**Channel linking example:** EQ A Þ B; EQ and Delay C Þ D
13.10 Frequency generator - Freq. gen.

Selecting «Freq. gen.» opens the corresponding subscreen.

Each amplifier channel is equipped with an independent signal generator offering sine wave or pink noise signals.

The generator provides pure-spectral sine wave signals with high frequency accuracy and free of harmonics.

The generator can be used to check the connected loudspeakers or to identify room resonances, for example.

The generator is inserted in the signal path after the input section and before the actual signal processing. The test tone will sum up with any input signal present.

**Note:** As a precautionary measure, the frequency generator is always set to Off after the device is powered on.

**Off**

The frequency generator is switched off (Bypass).

**Sine/Pink noise**

To turn the frequency generator on, select either «Sine» or «Pink noise», depending on the desired signal.

**Frequency**

The frequency is adjustable from 10 Hz to 20 kHz.

On the top right of the «Frequency/FRQ» input field, the increment is displayed as an octave value. When you click the field for the first time, the frequency increment is set to 1/6 octave. When you click the field again, you can toggle between 1/6 and 1/96 octave increments.

To confirm the set frequency, click the input field again.

**Level**

The level in dBu is adjustable from –57.5 dB to +6 dB in 0.5 dB steps.

The level value corresponds to the level at the controller signal input. The actual output voltage depends on the channel input gain, the frequency dependent gain of the selected loudspeaker setup and the EQ settings, if applicable.

On the Home screen, the On/Off status of the generator is indicated by the entry «FG» on the Channel view button of the corresponding channel strip, as shown in the graphic opposite.
14.1 Power supply
The device utilizes a universal range switch mode power supply with active Power Factor Correction (PFC).

The power supply is equipped with mains voltage monitoring, overvoltage and undervoltage protection as well as an inrush current limiter.

14.1.1 Active Power Factor Correction (PFC)
The active Power Factor Correction provides a clean and highly efficient sinusoidal current draw, thus providing highest performance under adverse mains conditions or when very long power cabling is necessary.
The power factor is above 0.9 for mains power consumption values of 500 W or higher.

14.1.2 Mains voltage monitoring
The mains voltage and frequency are recorded by the power supply and can be viewed within R1 or via the Web Remote interface. Where voltages outside of this range are present, a self-resetting protective circuit responds quickly to isolate the internal "Main Power Supply" leaving only a supervisory circuit running to monitor the mains voltage. The device accepts mains voltages of up to 400 V_\text{RMS} without damage to the device in case of a missing neutral line or running phase to phase.

14.1.3 Rated mains voltage
The power supply enables the device to be used with any mains supply worldwide without the need for manual action.

The power supply incorporates a "Mains Power Supply" and an "Auxiliary Power Supply".

Mains Power Supply
The Mains Power Supply feeds the power amplifiers within the nominal mains range of 100 to 240 V.

Auxiliary Power Supply
The Auxiliary Power Supply feeds the DSP section and the device control and operates within the range from 55 V_\text{RMS} to 400 V_\text{RMS}.
Behavior with fluctuating mains voltages

With mains voltages other than the nominal voltages specified above, the device switches to the adequate mode for either "Standby" (Protection) or "Operation".

The voltage thresholds are dependent on the slope of the mains voltage change.

<table>
<thead>
<tr>
<th>Undervoltage (Protection)</th>
<th>75</th>
<th>Operation</th>
<th>266</th>
<th>Overvoltage (Protection)</th>
<th>400</th>
</tr>
</thead>
<tbody>
<tr>
<td>55</td>
<td></td>
<td>85</td>
<td>276</td>
<td></td>
<td>400</td>
</tr>
</tbody>
</table>

Undervoltage

Depending on the operating state, the device will be switched to Standby mode (Protection).

**NOTICE!**

In **Overvoltage** state with mains voltages above 400 V, damage to the device cannot be excluded.

In **Undervoltage** state, the Auxiliary Power Supply for the device control operates down to 55 VAC RMS.

Up to this threshold ...
- The LED indicators on the front panel remain active.
- Remote control via web remote or R1 is still possible without restrictions.
- Below this threshold, the device will be switched off.

### 14.1.4 Mains supply requirements

Due to the high power capability of the amplifier, properly dimensioned mains supply installation and distribution are essential.

However, the mains supply benefits from the built-in active PFC (Power Factor Correction) function of the amplifier, which causes an almost ideal (sinusoidal) current shape. Power losses of the mains supply and cables are kept to the lowest possible minimum.

To ensure safe and stable operation, observe the following recommendations and specifications:
- When three amplifiers are operated with a three-phase (120°) mains supply, the current on the N (neutral) conductor can be minimized by matching loads and signals between the three devices.
- Keep the supply line as short as possible and its cross section as high as possible. Voltage drop at full load should not exceed 5 %.
14.1.5 Generator operation/UPS requirements
To operate the amplifier using a mains generator or uninterruptible power supply (UPS), observe the following:

- With the 10D/30D amplifiers the apparent power figure (VA value) is about the same as the effective power figure (W value).
- Use a generator or UPS that can deliver the maximum power required by the entire system. Assume a short time power draw of 1.3/2.2 kVA per 10D/30D. This is particularly important when using a UPS without dedicated short-time overload capability.
- Run the generator or UPS at 220 to 240 V, if available. 50 or 60 Hz is not an issue.

14.2 Power amplifiers
The power amplifiers fitted to the 10D/30D utilize Class D technology similar to a switch mode power supply. Compared to the known linear amplifier concept (Class A, AB, G or H), Class D power amplifiers produce less heat and allow for a compact and light-weight design.

While supplying very high maximum output swing, they maintain high efficiency with any kind of signal and load and run as cool as possible. Channels share the same power supply and are thermally coupled to provide even higher average power figures when unevenly loaded. TOP/SUB setups and active cardioid subwoofers are cases of typical use. A sophisticated circuit design decreases the impact of the load on the amplifier performance and enables a well defined sound reproduction. A comprehensive set of protection features individually prevents each channel from overload and/or damage/defect. Channels that are not affected will continue to operate, if safely possible.

14.3 Cooling fans
Two temperature and level controlled fans are incorporated for cooling the internal components, which allows greater cooling during louder program material. The fan speed is consequently reduced during quieter passages preventing background noise interference. If the unit heats up a «Temp. Warning» is issued and the fans will give full cooling power permanently.
14.4 Current/power draw and thermal dissipation

**Measurement references**

- **Signal CF 12 dB**: Represents 1/8th of the nominal power.
- **Signal CF 9 dB**: Represents 1/4th of the nominal power; power is limited to the nominal line current.

**Continuous (cont.)**: Unlimited time. Thermal conditions may affect power figures.

**Maximum (max.)**: Values are measured 1 sec. after signal was applied.

**Sine wave (Max. 1 s / 10 %)**: 1 kHz Sine wave with (voltage) CF 3 dB / 1.4, resp. Represents the highest line current draw.

### 10D Amplifier

#### 230 VAC / 50 Hz / 0.5 Ω Source impedance

<table>
<thead>
<tr>
<th>Mode/Signal</th>
<th>Load</th>
<th>Line current A_{RMS}</th>
<th>Power factor</th>
<th>Input power W</th>
<th>Output power (sum.) W</th>
<th>Power loss W</th>
<th>Thermal dissipation BTU/hr</th>
<th>Thermal dissipation kCal/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>-</td>
<td>0.2</td>
<td>0.1</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>Standby</td>
<td>-</td>
<td>0.23</td>
<td>0.23</td>
<td>13</td>
<td>0</td>
<td>13</td>
<td>44</td>
<td>11</td>
</tr>
<tr>
<td>Idling</td>
<td>-</td>
<td>0.37</td>
<td>0.5</td>
<td>45</td>
<td>0</td>
<td>45</td>
<td>154</td>
<td>39</td>
</tr>
<tr>
<td>Signal CF 12 dB cont.</td>
<td>4 Ω/Ch.</td>
<td>2.5</td>
<td>0.89</td>
<td>516</td>
<td>390</td>
<td>126</td>
<td>430</td>
<td>108</td>
</tr>
<tr>
<td>Signal CF 9 dB cont.</td>
<td>4 Ω/Ch.</td>
<td>4.86</td>
<td>0.96</td>
<td>1070</td>
<td>780</td>
<td>290</td>
<td>989</td>
<td>249</td>
</tr>
<tr>
<td>Signal CF 9 dB max.</td>
<td>4 Ω/Ch.</td>
<td>5.9</td>
<td>0.94</td>
<td>1296</td>
<td>800</td>
<td>496</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sine wave CF 3 dB Max. 1 s / 10 %</td>
<td>4 Ω/Ch.</td>
<td>16.2</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

#### 208 VAC / 60 Hz / 0.5 Ω Source impedance

<table>
<thead>
<tr>
<th>Mode/Signal</th>
<th>Load</th>
<th>Line current A_{RMS}</th>
<th>Power factor</th>
<th>Input power W</th>
<th>Output power (sum.) W</th>
<th>Power loss W</th>
<th>Thermal dissipation BTU/hr</th>
<th>Thermal dissipation kCal/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>-</td>
<td>0.21</td>
<td>0.1</td>
<td>4</td>
<td>0</td>
<td>4</td>
<td>14</td>
<td>3</td>
</tr>
<tr>
<td>Standby</td>
<td>-</td>
<td>0.25</td>
<td>0.22</td>
<td>13</td>
<td>0</td>
<td>13</td>
<td>44</td>
<td>11</td>
</tr>
<tr>
<td>Idling</td>
<td>-</td>
<td>0.41</td>
<td>0.53</td>
<td>45</td>
<td>0</td>
<td>45</td>
<td>154</td>
<td>39</td>
</tr>
<tr>
<td>Signal CF 12 dB cont.</td>
<td>4 Ω/Ch.</td>
<td>2.7</td>
<td>0.91</td>
<td>516</td>
<td>390</td>
<td>126</td>
<td>430</td>
<td>108</td>
</tr>
<tr>
<td>Signal CF 9 dB cont.</td>
<td>4 Ω/Ch.</td>
<td>5.3</td>
<td>0.97</td>
<td>1085</td>
<td>780</td>
<td>305</td>
<td>1041</td>
<td>262</td>
</tr>
<tr>
<td>Signal CF 9 dB max.</td>
<td>4 Ω/Ch.</td>
<td>5.5</td>
<td>0.97</td>
<td>1140</td>
<td>800</td>
<td>340</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sine wave CF 3 dB Max. 1 s / 10 %</td>
<td>4 Ω/Ch.</td>
<td>17</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
### 120 VAC / 60 Hz / 0.2 Ω Source impedance

<table>
<thead>
<tr>
<th>Mode/Signal</th>
<th>Load</th>
<th>Line current $A_{\text{RMS}}$</th>
<th>Power factor</th>
<th>Input power W</th>
<th>Output power (sum.) W</th>
<th>Power loss W</th>
<th>Thermal dissipation BTU/hr</th>
<th>Thermal dissipation kCal/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>-</td>
<td>0.2</td>
<td>0.05</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>Standby</td>
<td>-</td>
<td>0.2</td>
<td>0.3</td>
<td>7</td>
<td>0</td>
<td>7</td>
<td>25</td>
<td>6</td>
</tr>
<tr>
<td>Idling</td>
<td>-</td>
<td>0.47</td>
<td>0.67</td>
<td>39</td>
<td>0</td>
<td>39</td>
<td>131</td>
<td>33</td>
</tr>
<tr>
<td>Signal CF 12 dB cont.</td>
<td>4 Ω/Ch.</td>
<td>5.6</td>
<td>0.94</td>
<td>630</td>
<td>390</td>
<td>240</td>
<td>819</td>
<td>206</td>
</tr>
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<td>Signal CF 9 dB cont.</td>
<td>4 Ω/Ch.</td>
<td>8.5</td>
<td>0.99</td>
<td>1010</td>
<td>740</td>
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<tr>
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<td>4 Ω/Ch.</td>
<td>9.5</td>
<td>0.99</td>
<td>1120</td>
<td>800</td>
<td>320</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Sine wave CF 3 dB Max. 1 s / 10 %</td>
<td>4 Ω/Ch.</td>
<td>20.7</td>
<td>-</td>
<td>-</td>
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### 100 VAC / 60 Hz / 0.2 Ω Source impedance

<table>
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<th>Line current $A_{\text{RMS}}$</th>
<th>Power factor</th>
<th>Input power W</th>
<th>Output power (sum.) W</th>
<th>Power loss W</th>
<th>Thermal dissipation BTU/hr</th>
<th>Thermal dissipation kCal/hr</th>
</tr>
</thead>
<tbody>
<tr>
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<td>0.2</td>
<td>0.09</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>1</td>
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<td>Standby</td>
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<td>0.32</td>
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<td>0</td>
<td>7</td>
<td>22</td>
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<tr>
<td>Idling</td>
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<td>0.53</td>
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<td>0</td>
<td>38</td>
<td>130</td>
<td>33</td>
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<td>0.99</td>
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<td>220</td>
<td>751</td>
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<td>910</td>
<td>625</td>
<td>285</td>
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<td>245</td>
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<td>0.99</td>
<td>1180</td>
<td>800</td>
<td>380</td>
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### 30D Amplifier

### 230 VAC / 50 Hz / 0.5 Ω Source impedance

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<th>Input power W</th>
<th>Output power (sum.) W</th>
<th>Power loss W</th>
<th>Thermal dissipation BTU/hr</th>
<th>Thermal dissipation kCal/hr</th>
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<td>0</td>
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<td>4</td>
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<td>-</td>
<td>0.27</td>
<td>0.23</td>
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<td>0</td>
<td>14</td>
<td>48</td>
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<tr>
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<td>46</td>
<td>0</td>
<td>46</td>
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<td>40</td>
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<td>0.93</td>
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<td>1406</td>
<td>604</td>
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## Operation (Hardware references)

### 208 VAC / 60 Hz / 0.5 Ω Source impedance

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<th>Load</th>
<th>Line current $I_{\text{RMS}}$</th>
<th>Power factor</th>
<th>Input power W</th>
<th>Output power (sum.) W</th>
<th>Power loss W</th>
<th>Thermal dissipation BTU/hr</th>
<th>Thermal dissipation kCal/hr</th>
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</thead>
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<td>0.2</td>
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<td>0</td>
<td>4</td>
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<td>3</td>
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<td>0.3</td>
<td>0.23</td>
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<td>45</td>
<td>0</td>
<td>45</td>
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<td>350</td>
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<td>301</td>
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<td>0.98</td>
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<td>Sine wave CF 3 dB</td>
<td>4 Ω/Ch.</td>
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<td>-</td>
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### 120 VAC / 60 Hz / 0.2 Ω Source impedance

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<th>Line current $I_{\text{RMS}}$</th>
<th>Power factor</th>
<th>Input power W</th>
<th>Output power (sum.) W</th>
<th>Power loss W</th>
<th>Thermal dissipation BTU/hr</th>
<th>Thermal dissipation kCal/hr</th>
</tr>
</thead>
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<td>1</td>
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<tr>
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<td>0.31</td>
<td>8</td>
<td>0</td>
<td>8</td>
<td>27</td>
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<td>Idling</td>
<td>-</td>
<td>0.5</td>
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<td>39</td>
<td>133</td>
<td>34</td>
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<td>Signal CF 12 dB cont.</td>
<td>4 Ω/Ch.</td>
<td>7.5</td>
<td>0.99</td>
<td>890</td>
<td>640</td>
<td>250</td>
<td>853</td>
<td>215</td>
</tr>
<tr>
<td>Signal CF 9 dB cont.</td>
<td>4 Ω/Ch.</td>
<td>8.7</td>
<td>0.99</td>
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<td>760</td>
<td>280</td>
<td>955</td>
<td>241</td>
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<td>0.99</td>
<td>1980</td>
<td>1380</td>
<td>600</td>
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<td>-</td>
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<td>Sine wave CF 3 dB</td>
<td>4 Ω/Ch.</td>
<td>20.7</td>
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<td>-</td>
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<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Max. 1 s / 10 %</td>
<td>-</td>
<td>-</td>
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### 100 VAC / 60 Hz / 0.2 Ω Source impedance

<table>
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<tr>
<th>Mode/Signal</th>
<th>Load</th>
<th>Line current $I_{\text{RMS}}$</th>
<th>Power factor</th>
<th>Input power W</th>
<th>Output power (sum.) W</th>
<th>Power loss W</th>
<th>Thermal dissipation BTU/hr</th>
<th>Thermal dissipation kCal/hr</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF</td>
<td>-</td>
<td>0.2</td>
<td>0.07</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Standby</td>
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<td>0.2</td>
<td>0.35</td>
<td>7</td>
<td>0</td>
<td>7</td>
<td>25</td>
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<td>37</td>
<td>126</td>
<td>32</td>
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<tr>
<td>Signal CF 12 dB cont.</td>
<td>4 Ω/Ch.</td>
<td>9.4</td>
<td>0.99</td>
<td>940</td>
<td>680</td>
<td>260</td>
<td>887</td>
<td>224</td>
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<tr>
<td>Signal CF 9 dB cont.</td>
<td>4 Ω/Ch.</td>
<td>9.7</td>
<td>0.99</td>
<td>970</td>
<td>680</td>
<td>290</td>
<td>989</td>
<td>249</td>
</tr>
<tr>
<td>Signal CF 9 dB max.</td>
<td>4 Ω/Ch.</td>
<td>21.4</td>
<td>0.99</td>
<td>2140</td>
<td>1372</td>
<td>768</td>
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<tr>
<td>Sine wave CF 3 dB</td>
<td>4 Ω/Ch.</td>
<td>22.6</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Max. 1 s / 10 %</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>
15.1 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.

15.2 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 is not necessary.
16.1 EU declaration of conformity (CE symbol)
This declaration applies to:

- d&b 10D Amplifier, Z2760
- d&b 30D Amplifier, Z2770

manufactured by d&b audiotechnik GmbH.

All products of type 10D starting from variant Z2760.000 and 30D starting from variant Z2770.000 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 EC directives including all applicable amendments.

A detailed declaration is available on request and can be ordered from d&b or downloaded from the d&b website at: www.dbaudio.com.

16.2 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.

16.3 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 as described in Chapter 8.1.1 "Web Remote interface" on page 22.

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:

d&b audiotechnik GmbH
Eugen-Adolff-Straße, D-71522 Backnang, Germany
T +49-7191-9669-0, F +49-7191-95 00 00, info@dbaudio.com
or by email at: software.support@dbaudio.com
### 17.1 System check - References

#### 17.1.1 Typical impedance (Z) values

The following table indicates typical impedance values in ohms for d&b loudspeakers. With correct measurement conditions and relatively short cables, measured impedances should be within a range of ±20 % of the values indicated in the table. The values refer to a single cabinet. When two cabinets are connected in parallel, the total impedance is halved, with three cabinets it will be a third and so on.

**Note:** Please note that the LF values were determined by the amplifiers' measurement algorithms using sine wave signals. A DC resistance measurement using a multimeter may produce different results. 10D/30D amplifiers apply audible low level signals in the low frequency range for a few seconds using dedicated frequencies for each cabinet type. This reduces the impact of ambient temperature and mechanical aging of the driver components on the impedance values..

<table>
<thead>
<tr>
<th>System</th>
<th>Z LF</th>
<th>Z HF</th>
<th>Z MF/LF rear/side</th>
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<tr>
<td>Q1/7/10</td>
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<td>-</td>
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<td>V7P/V10P</td>
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<td>V8/V12</td>
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<td>V-SUB/V-GSUB</td>
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<td>Y7P/Y10P</td>
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<td>Y8/Y12</td>
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<td>Y-SUB</td>
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</table>
### 17.1.2 Max. number of cabinets operated in parallel

The following table indicates the maximum number of cabinets which can be operated in parallel by one amplifier channel in order to be able to detect a failure of a loudspeaker component.

**Note:** The thresholds of the System check function are also used by Load monitoring to evaluate the system status. Therefore the values in the table also apply to Load monitoring. If more cabinets are operated in parallel, a correct supervision for single component faults is not possible. This is of particular importance for voice alarm and evacuation systems.

<table>
<thead>
<tr>
<th>System</th>
<th>Single cabinet disconnected</th>
<th>HF section of single cabinet</th>
<th>Single HF/MF driver</th>
<th>LF section of single cabinet</th>
<th>Single LF driver</th>
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<tr>
<td>16C</td>
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<td>HF section of single cabinet</td>
<td>Single HF/MF driver</td>
<td>LF section of single cabinet</td>
<td>Single LF driver</td>
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</table>
### 17.2 Possible error messages

The following table lists possible error messages appearing within the Web Remote interface ordered by the error Id.

<table>
<thead>
<tr>
<th>Id</th>
<th>Display text</th>
<th>Eventlog text</th>
<th>Description</th>
<th>Location</th>
<th>Possible reasons</th>
</tr>
</thead>
<tbody>
<tr>
<td>10</td>
<td>System error 8</td>
<td>System error %u (Reboot)</td>
<td>Unexpected CPU reset</td>
<td>DSP</td>
<td>Software or hardware error.</td>
</tr>
<tr>
<td>11</td>
<td>System error 128</td>
<td>System error %d (I2C, IC 0x%02X, Pos %d)</td>
<td>Internal I2C communication fault</td>
<td>DSP</td>
<td>Any I2C device defect.</td>
</tr>
<tr>
<td>15</td>
<td>Unknown device type %d</td>
<td>Unknown device type %d</td>
<td>Unknown device type unknown</td>
<td>DSP</td>
<td>Missing or wrong module identification.</td>
</tr>
<tr>
<td>16</td>
<td>Invalid device ident %d</td>
<td>Invalid device ident %d</td>
<td>Invalid hardware configuration</td>
<td>DSP</td>
<td>Missing or wrong module identification.</td>
</tr>
<tr>
<td>17</td>
<td>Invalid CPLD version %d</td>
<td>Invalid CPLD version %d (minimum required %d)</td>
<td>Invalid CPLD identification</td>
<td>DSP</td>
<td>Missing or wrong module identification.</td>
</tr>
<tr>
<td>18</td>
<td>Invalid ADDAC ident %d</td>
<td>Invalid ADDAC board ident %d</td>
<td>Invalid ADDAC identification</td>
<td>DSP</td>
<td>Missing or wrong module identification.</td>
</tr>
<tr>
<td>19</td>
<td>Invalid display ident %d</td>
<td>Invalid display board ident %d</td>
<td>Invalid DISPLAY identification</td>
<td>DSP</td>
<td>Missing or wrong module identification.</td>
</tr>
<tr>
<td>20</td>
<td>Program error %u</td>
<td>Program error %d, %d, %d, %d</td>
<td>Program error</td>
<td>DSP</td>
<td>Various.</td>
</tr>
<tr>
<td>21</td>
<td>Invalid DSP Data</td>
<td>Invalid DSP database (Position %d, Error %d)</td>
<td>Invalid DSP data</td>
<td>DSP</td>
<td>Software error.</td>
</tr>
<tr>
<td>25</td>
<td>Program error %u</td>
<td>Program error %d: AWL error %d in AWL %d, line %d</td>
<td>Program error</td>
<td>DSP</td>
<td>Various.</td>
</tr>
<tr>
<td>28</td>
<td>SMPS comm. error</td>
<td>SMPS communication error (status %04X)</td>
<td>SMPS communication fault</td>
<td>DSP, SMPS</td>
<td>DSP or SMPS defect, cable defect.</td>
</tr>
<tr>
<td>29</td>
<td>SMPS firmware mismatch</td>
<td>SMPS firmware V%d. %02d.%02d not suitable for hardware ident %d</td>
<td>Invalid SMPS configuration</td>
<td>SMPS</td>
<td>SMPS firmware does not match module identification.</td>
</tr>
<tr>
<td>30</td>
<td>SMPS temp err %dÂ°C</td>
<td>SMPS temperature error +%dÂ°C (power %uW)</td>
<td>Mega-Temp-Off</td>
<td></td>
<td></td>
</tr>
<tr>
<td>32</td>
<td>Mains overvoltage &gt;276V</td>
<td>Mains overvoltage &gt;276V (avg %3dV, peak %3dV, status %04X, err %04X)</td>
<td>Mains overvoltage (External: Mains)</td>
<td></td>
<td>Mains voltage is/was too high.</td>
</tr>
<tr>
<td>34</td>
<td>Mains undervoltage %dV</td>
<td>Mains undervoltage (avg %3dV, peak %3dV, status %04X, err %04X)</td>
<td>Mains undervoltage (External: Mains)</td>
<td></td>
<td>Mains voltage is/was too low.</td>
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<tr>
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<td>Amp. comm. error</td>
<td>Amp. communication error (status %04X)</td>
<td>Amp communication fault</td>
<td>DSP, Amp</td>
<td>DSP or Amp defect.</td>
</tr>
<tr>
<td>Id</td>
<td>Display text</td>
<td>Eventlog text</td>
<td>Description</td>
<td>Location</td>
<td>Possible reasons</td>
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<td>--------------------------------------------------</td>
<td>----------</td>
<td>---------------------------------------</td>
</tr>
<tr>
<td>46</td>
<td>Amp. firmware is too old</td>
<td>Amp. firmware version %4.2d is too old, required is %4.2d</td>
<td>Amp firmware version is older than required</td>
<td>Amp</td>
<td>Amp software error.</td>
</tr>
<tr>
<td>50</td>
<td>Invalid device parameters</td>
<td>Channel '%c': invalid device parameters (device ident %d)</td>
<td>Invalid device parameters</td>
<td>DSP</td>
<td>Software error or wrong device type detected.</td>
</tr>
<tr>
<td>51</td>
<td>Invalid DSP prog %u</td>
<td>Channel '%c': invalid DSP program %d</td>
<td>DSP program invalid</td>
<td>DSP</td>
<td>Software error.</td>
</tr>
<tr>
<td>52</td>
<td>DSP boot error</td>
<td>Channel '%c': DSP boot error (DSP program %d)</td>
<td>DSP boot error</td>
<td>DSP</td>
<td>DSP or software error.</td>
</tr>
<tr>
<td>58</td>
<td>DSP comm. error</td>
<td>Channel '%c': DSP communication error</td>
<td>DSP communication fault</td>
<td>DSP</td>
<td>DSP defect or software error.</td>
</tr>
<tr>
<td>59</td>
<td>Invalid setup data</td>
<td>Channel '%c': invalid speaker setup (speaker id %d, no. %d, err %d)</td>
<td>DSP invalid setup data</td>
<td>DSP</td>
<td>Software error.</td>
</tr>
<tr>
<td>61</td>
<td>Invalid AP slot %d</td>
<td>Channel '%c': invalid AP slot %d (file version %d)</td>
<td>Invalid ArrayProcessing data</td>
<td>DSP</td>
<td>Software error.</td>
</tr>
<tr>
<td>78</td>
<td>Amp. supply fault</td>
<td>Amp. supply fault (status %04X, err %04X, %4.1dV, %4.1dV)</td>
<td>Amp rail voltages</td>
<td>Amp</td>
<td>Amp defect.</td>
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<td>79</td>
<td>Amp. firmware mismatch</td>
<td>Amp. firmware V%d. %02d.%02d not suitable for hardware ident %d</td>
<td>Amp has wrong firmware</td>
<td>Amp</td>
<td>Amp firmware does not support the Amp hardware.</td>
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<tr>
<td>87</td>
<td>Amp temp. mute</td>
<td>Channel '%c': Amp. temperature auto shutdown (%dÂ°C)</td>
<td>Amp mute due to high temperature</td>
<td>Amp</td>
<td>Poor cooling.</td>
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<td>89</td>
<td>Amp. protection</td>
<td>Channel '%c': Amp. protection (power %uW)</td>
<td>Amp channel protection</td>
<td>Amp</td>
<td>cabling or Amp defect.</td>
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<tr>
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<td>Amp. overttemp %dÂ°C</td>
<td>Channel '%c': Amp. overttemperature %dÂ°C (power %uW)</td>
<td>Amp over temperature</td>
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<td>Poor cooling.</td>
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<td>Amp. temp sensor fault</td>
<td>Amp. temperature sensor fault (A %dÂ°C, B %dÂ°C, C %dÂ°C, D %dÂ°C)</td>
<td>Amp temperature sensor fault</td>
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<td>Amp defect.</td>
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<td>Poor cooling.</td>
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<td>CAN open error</td>
<td>Could not open CAN interface (error %d)</td>
<td>CAN interface open error</td>
<td>DSP</td>
<td>DSP defect or software error.</td>
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<td>CAN error %d (remote flags %02X, dbCan flags %02X)</td>
<td>CAN error</td>
<td>[External: CAN cabling], RemId</td>
<td>CAN cabling or multiple RemIds.</td>
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<tr>
<td>Id</td>
<td>Display text</td>
<td>Eventlog text</td>
<td>Description</td>
<td>Location</td>
<td>Possible reasons</td>
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<tr>
<td>122</td>
<td>CAN warning</td>
<td>CAN warning %d (remote flags %02X, dbCan flags %02X)</td>
<td>CAN warning</td>
<td>(External: CAN cabling)</td>
<td>CAN cabling or multiple RemIDs.</td>
</tr>
<tr>
<td>124</td>
<td>OCA remote error</td>
<td>OCA remote error %u</td>
<td>OCA remote error</td>
<td></td>
<td>Software error.</td>
</tr>
<tr>
<td>150</td>
<td>Speaker imp. fault</td>
<td>(empty)</td>
<td>Load Monitoring</td>
<td>(External: speaker, cabling)</td>
<td>Speaker defect, cable.</td>
</tr>
<tr>
<td>153</td>
<td>Amp. low temperature</td>
<td>Channel %c: Amp. temperature too low (%dÅ°C)</td>
<td>Amp temperature warning</td>
<td>Amp</td>
<td>Ext. conditions, sensor fault.</td>
</tr>
<tr>
<td>160</td>
<td>Input fallback</td>
<td>Input fallback (A1=%, A2=%, D1=%, D2=%)</td>
<td>Input fallback was activated</td>
<td>(External: Cabling)</td>
<td>Cabling or signal source defect.</td>
</tr>
<tr>
<td>161</td>
<td>Input monitoring fault</td>
<td>Input monitoring fault A%d (%4.1dBu, threshold %4.1dBu)</td>
<td>Input monitoring fault</td>
<td>(External: Cabling)</td>
<td></td>
</tr>
<tr>
<td>162</td>
<td>Input monitoring fault</td>
<td>Input monitoring fault A%d (%4.1dBu, threshold %4.1dBu)</td>
<td>Input monitoring fault</td>
<td></td>
<td></td>
</tr>
<tr>
<td>163</td>
<td>Input monitoring fault</td>
<td>Input monitoring fault A%d (%4.1dBu, threshold %4.1dBu)</td>
<td>Input monitoring fault</td>
<td></td>
<td></td>
</tr>
<tr>
<td>164</td>
<td>Input monitoring fault</td>
<td>Input monitoring fault A%d (%4.1dBu, threshold %4.1dBu)</td>
<td>Input monitoring fault</td>
<td></td>
<td></td>
</tr>
<tr>
<td>165</td>
<td>Input monitoring fault</td>
<td>Input monitoring fault D%d (lock %d, %4.1dBFS, threshold %4.1dBFS)</td>
<td>Input monitoring fault</td>
<td></td>
<td></td>
</tr>
<tr>
<td>166</td>
<td>Input monitoring fault</td>
<td>Input monitoring fault D%d (lock %d, %4.1dBFS, threshold %4.1dBFS)</td>
<td>Input monitoring fault</td>
<td></td>
<td></td>
</tr>
<tr>
<td>167</td>
<td>Input monitoring fault</td>
<td>Input monitoring fault D%d (lock %d, %4.1dBFS, threshold %4.1dBFS)</td>
<td>Input monitoring fault</td>
<td></td>
<td></td>
</tr>
<tr>
<td>168</td>
<td>Input monitoring fault</td>
<td>Input monitoring fault D%d (lock %d, %4.1dBFS, threshold %4.1dBFS)</td>
<td>Input monitoring fault</td>
<td></td>
<td></td>
</tr>
<tr>
<td>169</td>
<td>Ethernet overload</td>
<td>Ethernet overload, throttling active</td>
<td>Ethernet overload</td>
<td></td>
<td>Too much network traffic.</td>
</tr>
</tbody>
</table>