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Z5600.002
Manual 1.2 en



General information

Z5600.002 Manual

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Explanation of graphical symbols



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



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

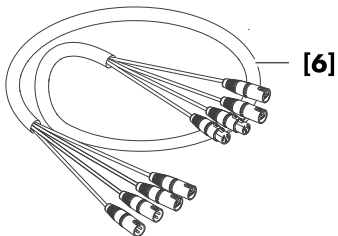
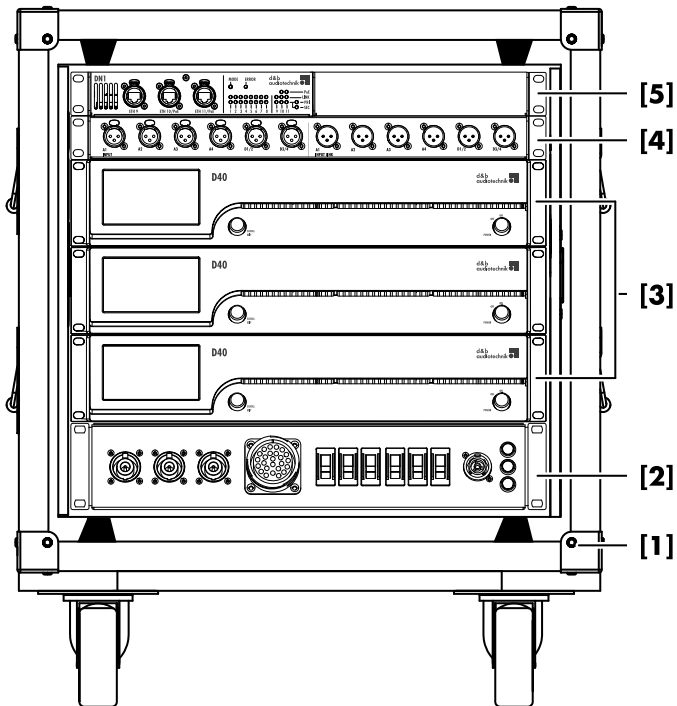
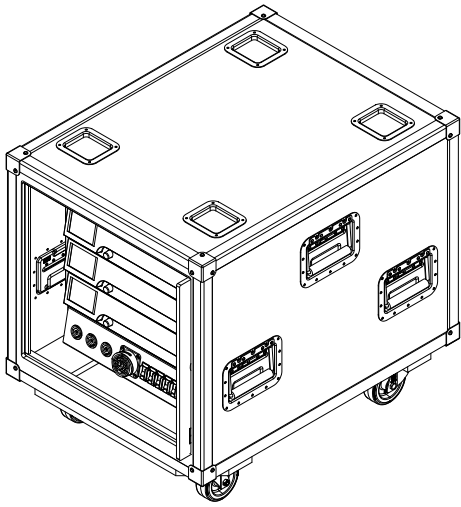


Before using this product, carefully read the applicable items of the following safety instructions.

1. Keep these instructions for future reference.
2. Read these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. **WARNING!**
To reduce the risk of fire or electric shock:
 - Do not expose the rack assembly to rain or moisture.
 - Keep water or other liquids away.
 - Do not place liquid filled containers, for example beverages, on top of the rack assembly.
 - Do not operate the rack assembly while it is wet or standing in liquid.
6. Do not use the rack assembly if its mains 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 rack assembly.
7. Use the mains plug of the rack assembly as the disconnecting device and keep it readily accessible.
8. Lay all cables connected to the rack assembly 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.
9. Unplug the rack assembly during lightning storms or when unused for long periods of time.

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1 D40 Touring rack assembly 10 RU - CEE



1.1 Intended use

The Z5600.002 D40 Touring rack assembly CEE is designed as a closed system rack providing mains power distribution and connector interfaces for 3 x D40 amplifiers each. For this purpose, the touring rack is equipped with a mains power distribution device (Z5605.000), which also serves as a loudspeaker connector panel.

In addition, the Z4001 DN1 Ethernet network switch provides an AVB-enabled 11-port switch (3 x etherCON / 8 x RJ45).

Also incorporated is an I/O panel (Z5604), which serves as a connector interface for both analog and digital audio signals.

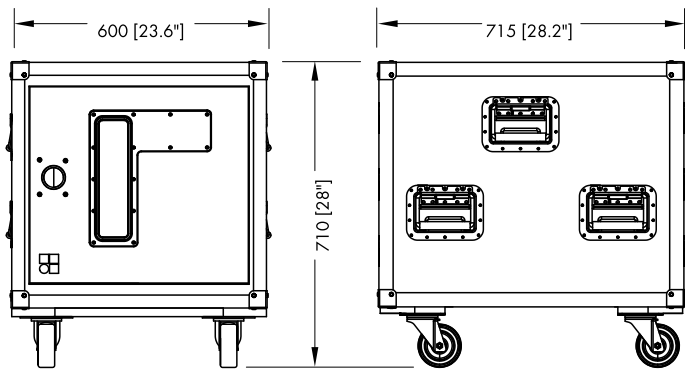
1.2 Scope of supply

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

If there is any sign of obvious damage, do not operate the rack assembly and contact your local dealer from whom you received it.

Note: Depending on the ordered rack assembly variant, the rack assembly comprises the following components:

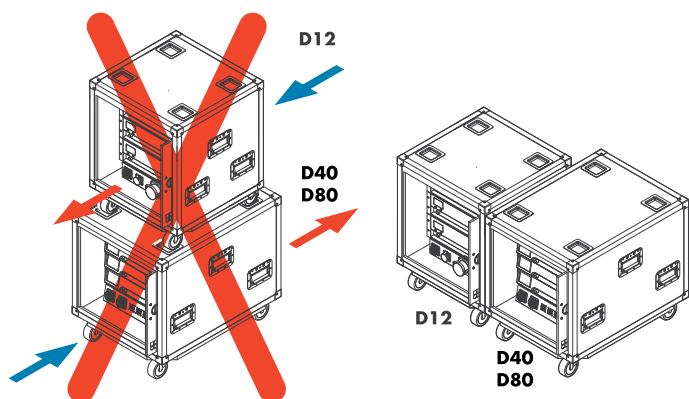
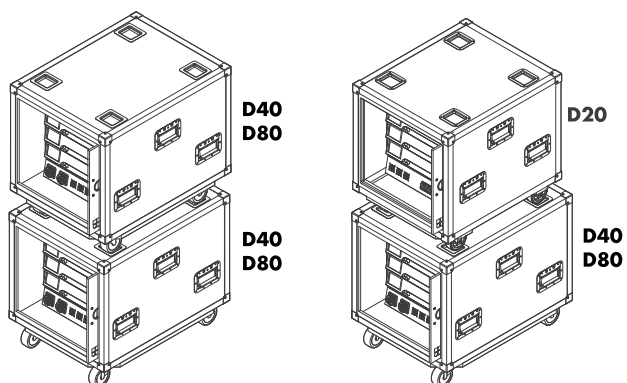
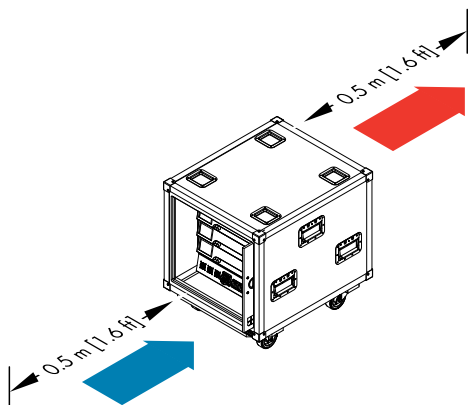
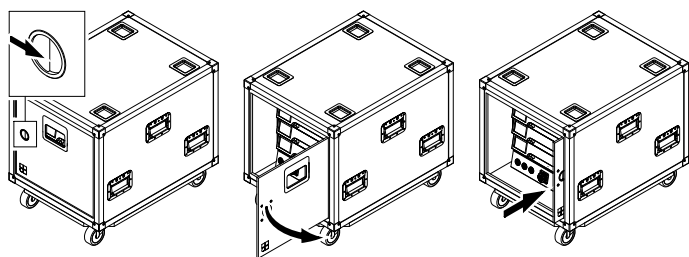
| Pos. | Qty. | d&b Code | Description |
|------------|------|--------------|--|
| [1] | 1 | Z5600.002 | Touring rack assembly 10 RU (CEE) - with shock mounted 19" frame |
| Including: | | | |
| [2] | 1 | Z5605.000 | Mains power distribution and LS Connector panel (CEE) |
| [3] | 3 | Z2850 | D40 Amplifier |
| [4] | 1 | Z5604.000 | I/O Panel |
| [5] | 1 | Z4001 | DN1 Network switch |
| [6] | 1 | Z5333.001 | Rack link network |
| | | D2760.EN .01 | Z5600.002 Manual |



Dimensions and weight

Height x width x depth 710 x 600 x 715 mm
 28 x 23.6 x 28.2"
 Total weight (1x DN1 included) 110 kg / 242 lb

2 Handling, cooling and placement



2.1 Handling

The touring rack is equipped with two sliding doors allowing quick and easy access to the front and rear panels of the devices.

1. Unlock the door lock mechanism.
2. Open the door.
3. Push the door into its park position.

2.2 Cooling and placement

NOTICE!

Risk of malfunction due to overheating!

Make sure both the front and rear doors are opened and pushed into their park positions to provide sufficient cooling.

When using touring rack assemblies such as the d&b Z5600/ Z5601 D40 Touring rack assembly or any other touring rack containing D40 amplifiers, make sure to provide sufficient space of 0.5 m (1.6 ft) at the front and rear of the touring rack to ensure adequate cooling airflow.

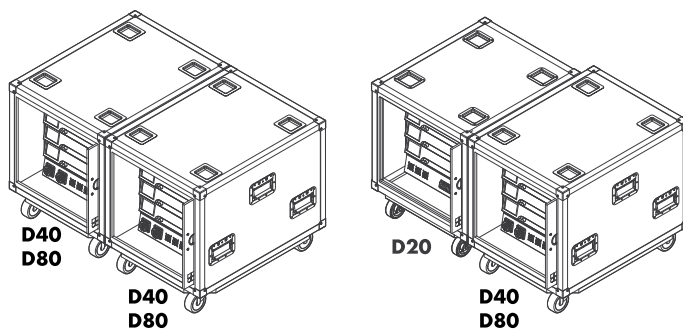


CAUTION!

Risk of personal injury and/or damage to material due to possible tipping over!

To avoid possible tipping over, do not move stacked touring racks.

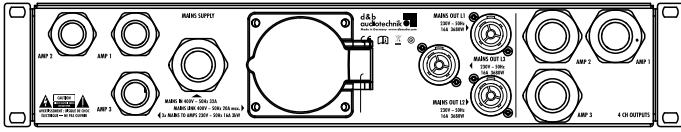
D40 Touring rack assemblies as well as D40 and D20 Touring racks can be stacked or positioned side by side.



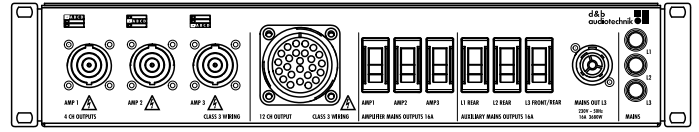
When combining D40 Touring rack assemblies with Z3010 D12 Touring rack assemblies or any other rack assemblies that produce an opposing airflow, observe the following restrictions:

- Do **not stack** D12 Touring racks or any other rack assemblies with opposing airflow on top of the D40 Touring Rack.
- D40/D12 Touring rack assemblies can be positioned side by side.

3 Z5605.000 Mains power distributor and LS Panel - CEE



Z5605.000 Rear panel



Z5605.000 Front panel

3.1 Intended use

The Z5605.000 Mains power distributor is designed and dimensioned to provide and distribute the mains power supply necessary for three D40 amplifiers. It also serves as a loudspeaker connection panel for different connection options.

It is a 2 RU, protective class 1 unit with IP class 20 (NOT rain-, drip-, or splash-proof!).

The Z5605.000 Mains power distributor must not be used for any other purpose or outside the system rack.

3.2 Rear panel

3.2.1 MAINS SUPPLY



WARNING!

Potential risk of electric shock.

The Mains power distributor 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.

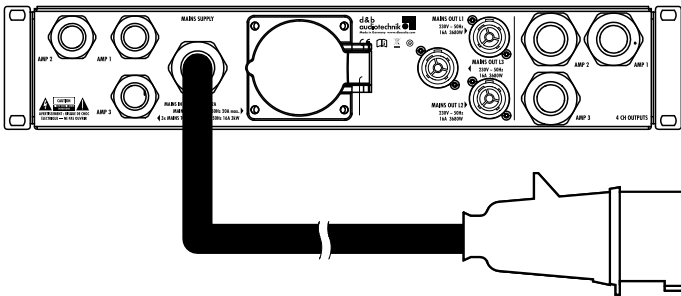
- Connect the unit to mains power supplies with protective earth only.
- If there is any sign of obvious damage to the power cord and/or CEE mains connector, do not use the unit and replace it before further use.
- Do not connect or disconnect the CEE mains connector under load or live.
- Please ensure the mains connector is accessible at any time to disconnect the rack assembly in case of malfunction or danger.

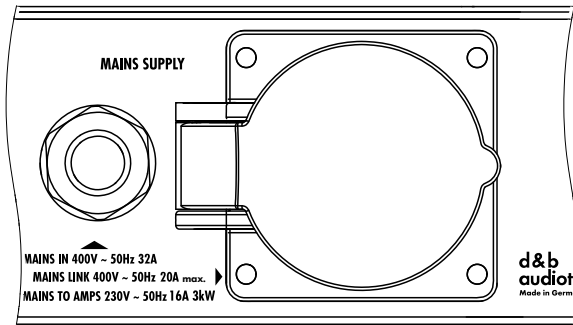
The Z5605.000 Mains power distributor is supplied with a fixed 3-phase power cord equipped with a 32 A CEE (Cekon) mains connector.

Required mains supply network configuration

3-phase 230/400 VAC - 50/60 Hz - 32 A_{max}. B or C-Frame (3PNPE).

Connect only **one** rack assembly to the mains power outlet of the onsite sub-distribution.



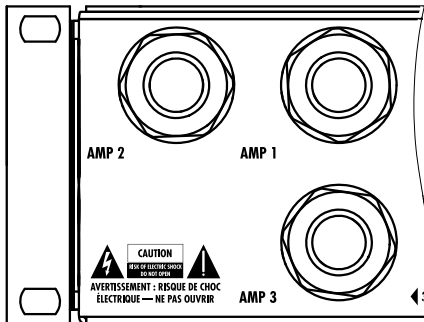
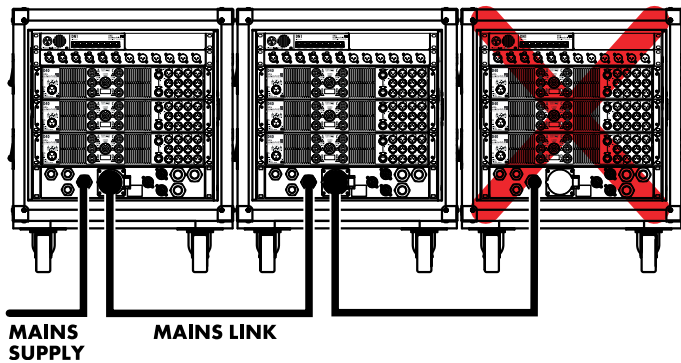


3.2.2 MAINS LINK - 32 A CEE (20 A_{max.})

The MAINS LINK socket allows further system racks to be linked to the mains power supply.

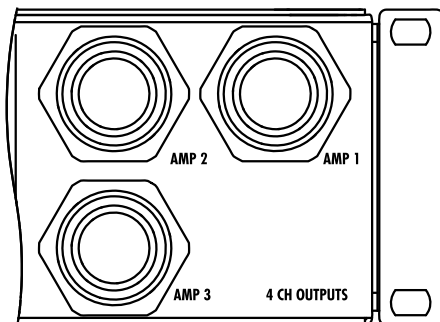
NOTICE!

To avoid any overload of the onsite mains power supply, we recommend you to link no more than **one** further system rack to the respective mains power supply line.



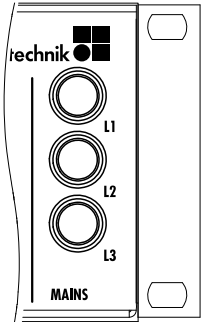
3.2.3 AMP 1 / AMP 2 / AMP 3 MAINS SUPPLY

Three fixed single-phase mains power lines (L1-L2-L3) with dedicated lengths, each fitted with a powerCON® TRUE 1 TOP mains connector, are provided for the internal mains power supply of the amplifiers.



3.2.4 AMP 1 / AMP 2 / AMP 3 4 CH OUTPUTS

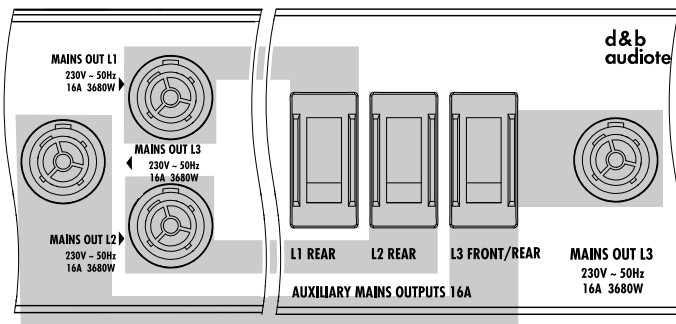
Three fixed multicore cables with dedicated lengths, each fitted with an NL8 connector, are provided for the internal 4 CH OUTPUTS wiring of the amplifiers.



3.3 Front panel

3.3.1 MAINS

When the rack is connected to the onsite mains power supply, the three mains indicators display the presence of the onsite mains supply lines (phase conductor L1-L2-L3).



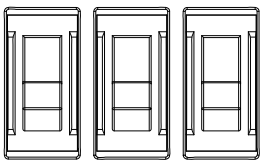
3.3.2 AUXILIARY MAINS OUTPUTS 16A

Four auxiliary mains outputs (powerCON® TRUE 1 TOP sockets) are provided. One socket is mounted on the front and three sockets on the rear panel.

One of these sockets is used to apply mains supply for the DN1 device.

The remaining sockets are intended for the connection of low current devices such as notebooks or additional Ethernet switches.

The sockets are equipped with dedicated circuit-breakers (16 A / C-Frame type).



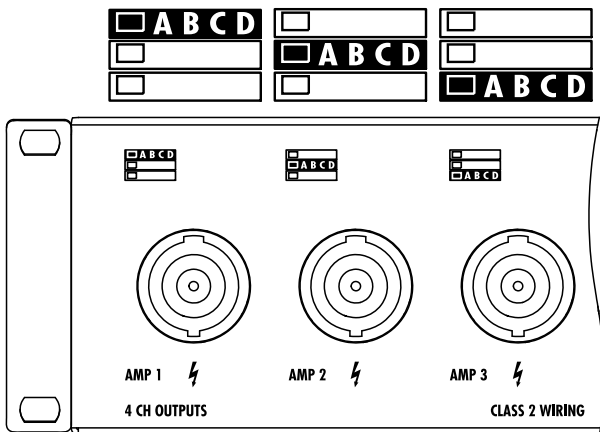
AMP1 AMP2 AMP3

AMPLIFIER MAINS OUTPUTS 16A

3.3.3 AMPLIFIER MAINS OUTPUTS

Each single-phase mains power line is equipped with a dedicated circuit-breaker (16 A / B-Frame type).

The respective circuit-breakers of the onsite mains distribution are still necessary for this purpose.



3.3.4 4 CH OUTPUTS - NL8

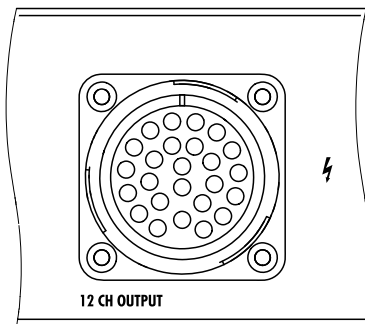
NOTICE!

The 4 CHANNEL OUTPUT connectors are only intended as an interface to a rack panel or to loudspeaker multicores and breakout adapters. Do not connect any loudspeaker cabinets, neither passive nor active systems, to these connectors, otherwise there is a risk of damaging the loudspeaker components or the amplifier.

Each of the 4 CH OUTPUTS connectors represents the 4 CHANNEL OUTPUT of the respective D40 amplifier. Each connector carries the output signals of all four channels of the amplifier with the following pin assignment.

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

Please refer to the corresponding channel assignment label above each connector as shown in the graphic opposite.



3.3.5 12 CH OUTPUT

One 12 CH OUTPUT multipin connector (LKA25) is provided to allow efficient system wiring using the d&b MC24 multicore system (Z5328.xxx MC24 LKA25 F/M Multicore, Z5325.000 Break-out adapter LKA25M to 6 x NLT4M, Z5327.000 Break-out adapter LKA25M to 12 x NLT4M and Z5326.000 Break-in adapter 3 x NLT8F to LKA25F).

The d&b MC24 Multicore System combines a 12-amplification-channels cable (24 lines 4 mm²) with an LKA25 F/M connector.

For this reason, the connector carries the output signal of twelve (12) amplifier channels.

Pin equivalents of the LKA25 connectors and the corresponding 4 CHANNEL OUTPUT (NL8) connectors of the respective amplifier are listed in the following table:

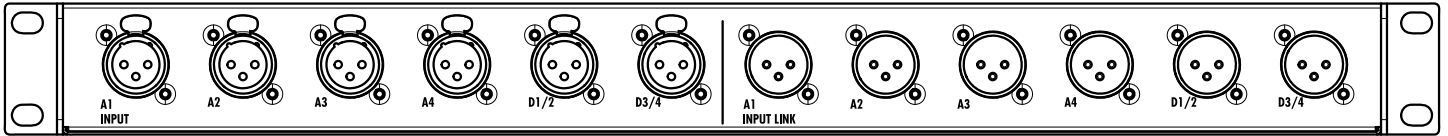
| 12 CH OUTPUT AMP 1/2/3 | | | | | | | | |
|------------------------|-----|------------------|-------|-----|------------------|-------|-----|------------------|
| LKA25 | NL8 | Amplifier | LKA25 | NL8 | Amplifier | LKA25 | NL8 | Amplifier |
| A | 1+ | AMP 1 | I | 1+ | AMP 2 | Q | 1+ | AMP 3 |
| B | 1- | | J | 1- | | R | 1- | |
| C | 2+ | | K | 2+ | | T | 2+ | |
| D | 2- | | L | 2- | | U | 2- | |
| E | 3+ | | M | 3+ | | V | 3+ | |
| F | 3- | | N | 3- | | W | 3- | |
| G | 4+ | | O | 4+ | | X | 4+ | |
| H | 4- | | P | 4- | | Y | 4- | |

4.1 Intended use

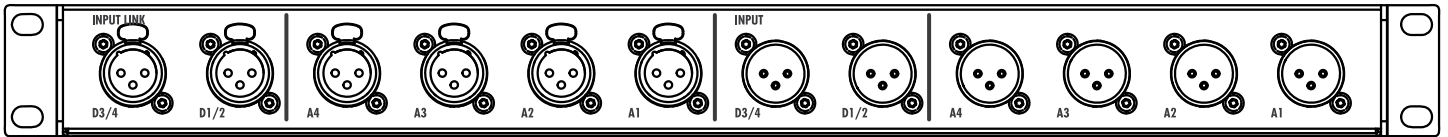
The D40 I/O Panel is intended for rack mounting only and must not be used stand-alone outside of a rack.

Within an amplifier system rack, it acts as connecting interface for both analog and digital audio INPUT and INPUT LINK connectors.

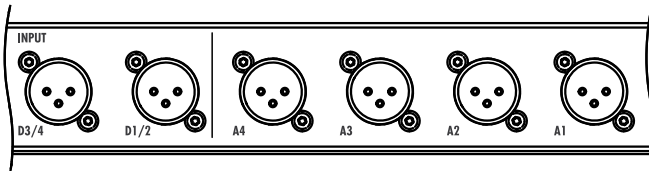
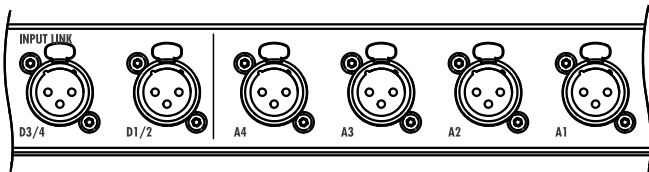
4.2 Overview



Z5604 Front view



Z5604 Rear view



4.2.1 INPUT

The INPUT section represents the input connectors of the first amplifier while the other two (five) amplifiers are linked within the rack. The INPUT section allows both analog and digital audio signals to be fed to the amplifier.

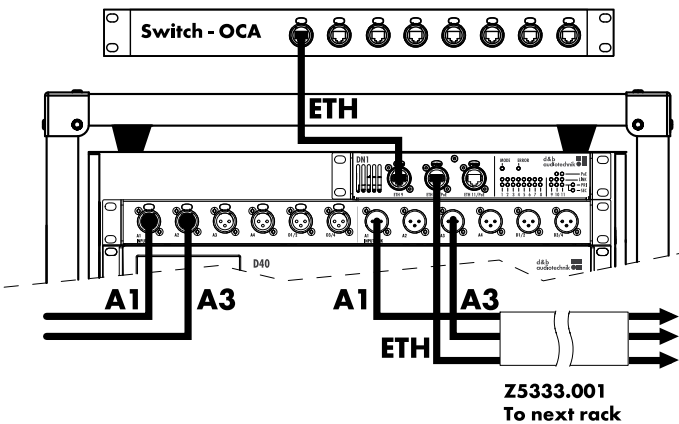
4.2.2 INPUT LINK

The INPUT LINK section represents the link output connectors of the last (third/sixt) amplifier and allows the linking of further system racks.

4.2.3 Remote network option

You can daisy chaining the rack assemblies within a remote network using the enclosed rack link cable (Z5333.001).

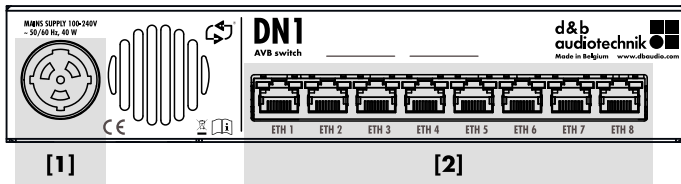
For remote purposes via Ethernet/OCA, it is strongly recommended to use the prewired configuration in combination with the DN1 when linking entire rack assemblies, as shown in the graphic opposite. It is recommended to link a maximum of up to 6 rack assemblies in this way.



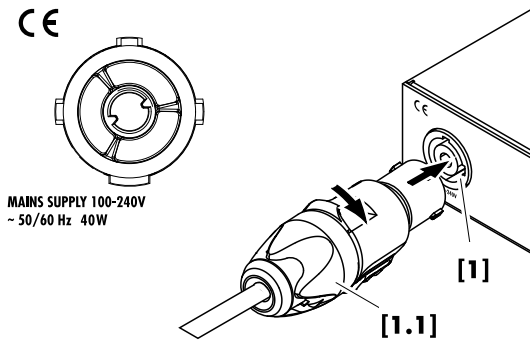
I/O panel, rack link example:
2ch Analog audio and Ethernet/OCA

5 DN1 Ethernet switch

Rear panel connectors

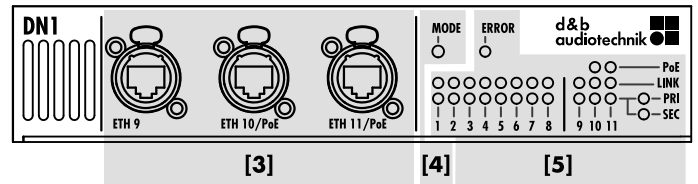


- [1] powerCON TRUE 1 TOP® mains connector socket.
Refer to ⇒ Chapter 5.2 "Mains connection" on page 13.
- [2] Ethernet switch with 8 x RJ45 ports.
Refer to ⇒ Chapter 5.4 "Rear panel" on page 15.



5.1 Overview

Front panel connectors, controls and indicators



- [3] etherCON® switch ports ETH 9 - ETH 11.
Refer to ⇒ Chapter 5.3.1 "ETH 9 - ETH 11" on page 13.
- [4] Mode button.
Refer to ⇒ Chapter 5.3.2 "Mode selection" on page 14.
- [5] Multi-colored LED indicators.
Refer to ⇒ Chapter 5.3.3 "LED indicators" on page 14.

5.2 Mains connection



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.

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

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

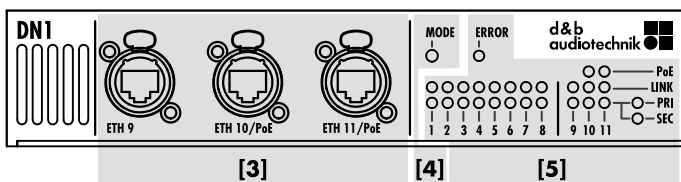
5.3 Front panel

5.3.1 ETH 9 - ETH 11

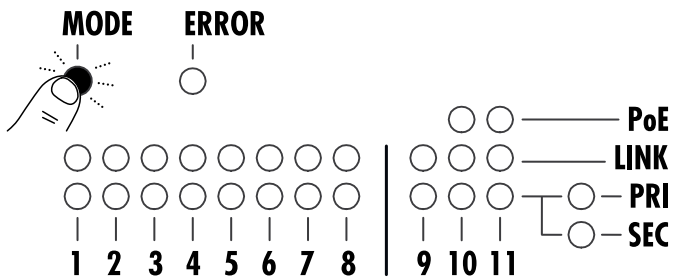
The DN1 device provides an 11-port Ethernet switch for different network topologies, redundancy (max. two devices) and advanced functionality with AVB. Three connectors are provided on the front panel.

Power over Ethernet

The « ETH 10/PoE » and « ETH 11/PoE » Ethernet connectors also provide Power over Ethernet based on IEEE standard 802.3af. Each port delivers a maximum of 15.4 W, both ports deliver a maximum total of 25 W. If the maximum power is exceeded, PoE supply will be shut off.



Note: Either of the « ETH 10/PoE » or « ETH 11/PoE » connector is also intended to feed an inclinometer such as the d&b ArraySight sender unit, which is integrated in the flying frame for vertical aiming of the entire array.



Reset mode

The remote reset function resets all settings related to remote communication to factory defaults. To reset the DN1 device to defaults, proceed as follows:

1. Select and hold the «MODE» button for five seconds.
 - ↳ All AVB port status LEDs turn red for two seconds. All other LEDs are off.
2. Release the «MODE» button.
3. Within two seconds, select the «MODE» button once again.
 - ↳ All AVB port status LEDs turn red for two seconds. All other LEDs are off. All remote settings are set to default.

5.3.2 Mode selection

The DN1 device features a «MODE» button on the front panel. This button is used for three different purposes:

- **Configuration mode**
Toggle between primary and secondary configurations.
- **Reset mode**
Reset the device to remote settings default.
- **Wink mode** (device identification)
Visual identification of your device.

Configuration mode

If the DN1 device is operated within an AVB network, you must configure all switches for use in a primary or secondary network. The DN1 recognizes a primary or secondary connection of the connected AVB device and indicates an error if a primary port has been connected to a secondary switch and vice versa.

To enter the Configuration mode, proceed as follows:

1. Select and hold the «MODE» button for two seconds.
 - ↳ Either the «PRI» or the «SEC» LED starts to flash in periods of one second with an uptime of 50%.
2. Select the «MODE» button to toggle between primary and secondary configurations.
 - ↳ After five seconds of inactivity, the «PRI» and «SEC» LEDs leave the Configuration mode and switch back to normal display mode.

Note: Without an DHCP server in LinkLocal IP mode:

- IP address range in primary mode: **169 . 254 . xxx**
- IP address range in secondary mode: **172 . 31 . xxx**

Wink mode (device identification)

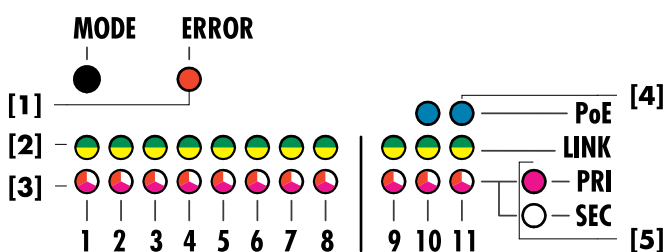
To activate the Wink mode, proceed as follows:

1. Select the «MODE» button once.
 - ↳ All AVB port status LEDs flash in the color of the current Configuration mode (● = Primary / ○ = Secondary).
2. After three seconds, the Wink mode stops automatically.

5.3.3 LED indicators

All device states and operating modes are indicated by dedicated multi-colored LEDs.

Note: In case of an device error, connect the device to R1 via OCA to obtain further information.



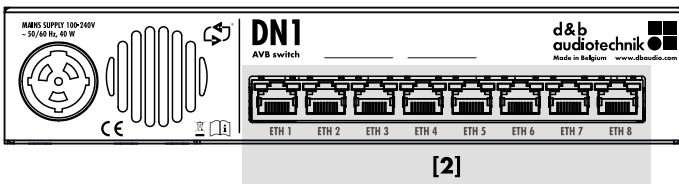
The LED color codes and the related device states and operating modes are detailed in the table below.

| LED color | [1] Error | [2] LINK | [3] AVB | [4] PoE | [5] PRI / SEC |
|--------------|-----------------------|----------------------------------|---|---------------------------------|----------------------------|
| ● | Device error detected | - | Detected AVB network does not match the device settings | - | - |
| ● | - | Network activity, max. 1 Gbit | - | - | - |
| ● | - | Network activity, max. 100 Mbit. | - | - | - |
| ● | - | - | Primary AVB network detected | - | Device in PRI network mode |
| ○ | - | - | Secondary AVB network detected | - | Device in SEC network mode |
| ● | - | - | - | Active PoE supply | - |
| LED off | Normal operation | No active connection | No AVB network information | No PoE enabled device connected | - |
| LED flashing | | Traffic | | PoE Error | |

5.4 Rear panel

ETH 1 - ETH 8

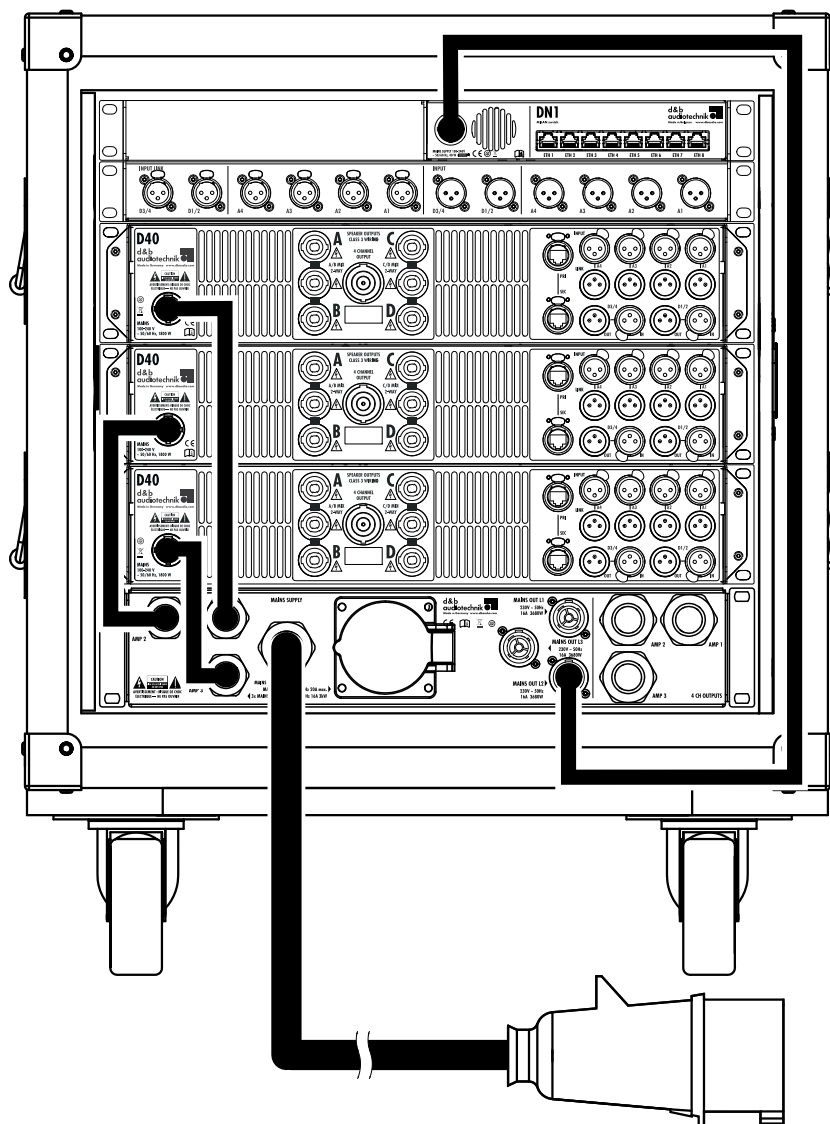
The DN1 device provides a RJ45 8-port panel at the rear of the device.



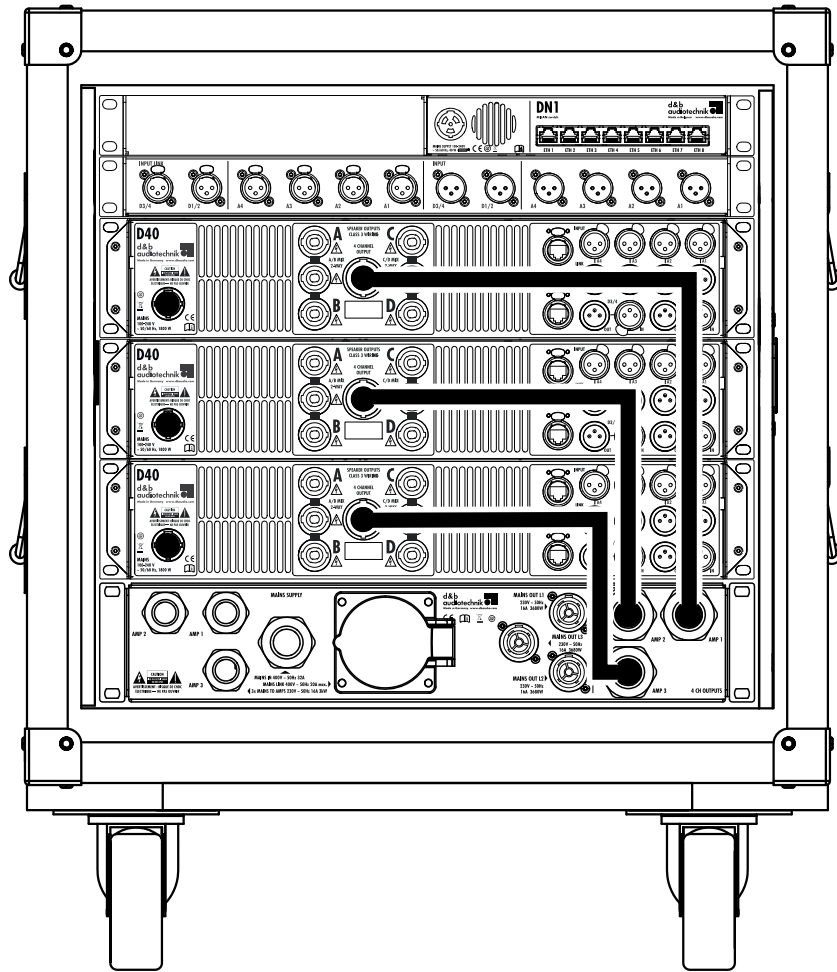
[2]

6 Rack wiring diagrams

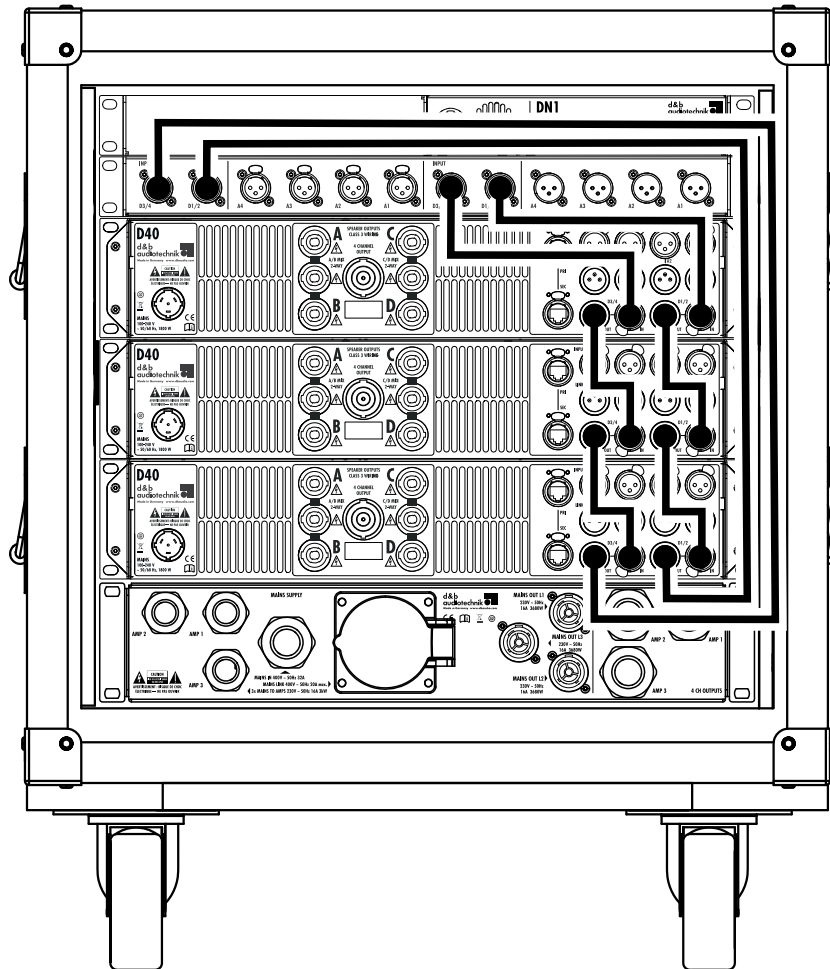
Mains power connection and internal mains supply distribution



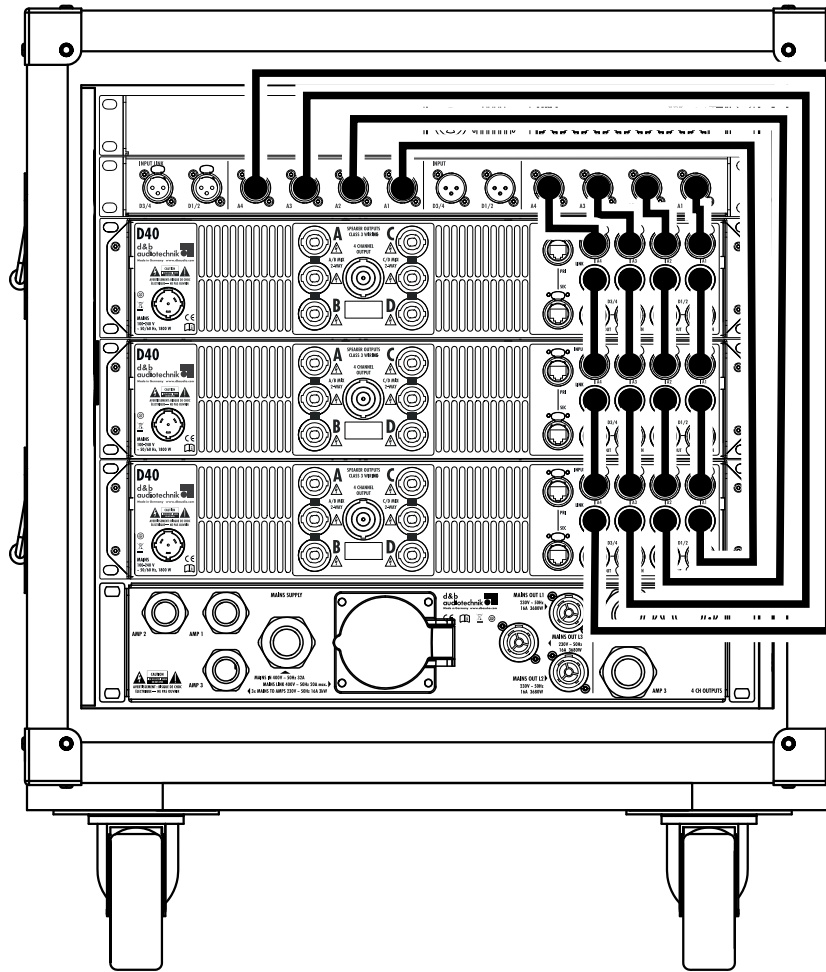
Internal 4 CHANNEL OUTPUT wiring



Internal digital audio INPUT and LINK wiring



Internal analog audio INPUT and LINK wiring



Internal Ethernet network wiring

