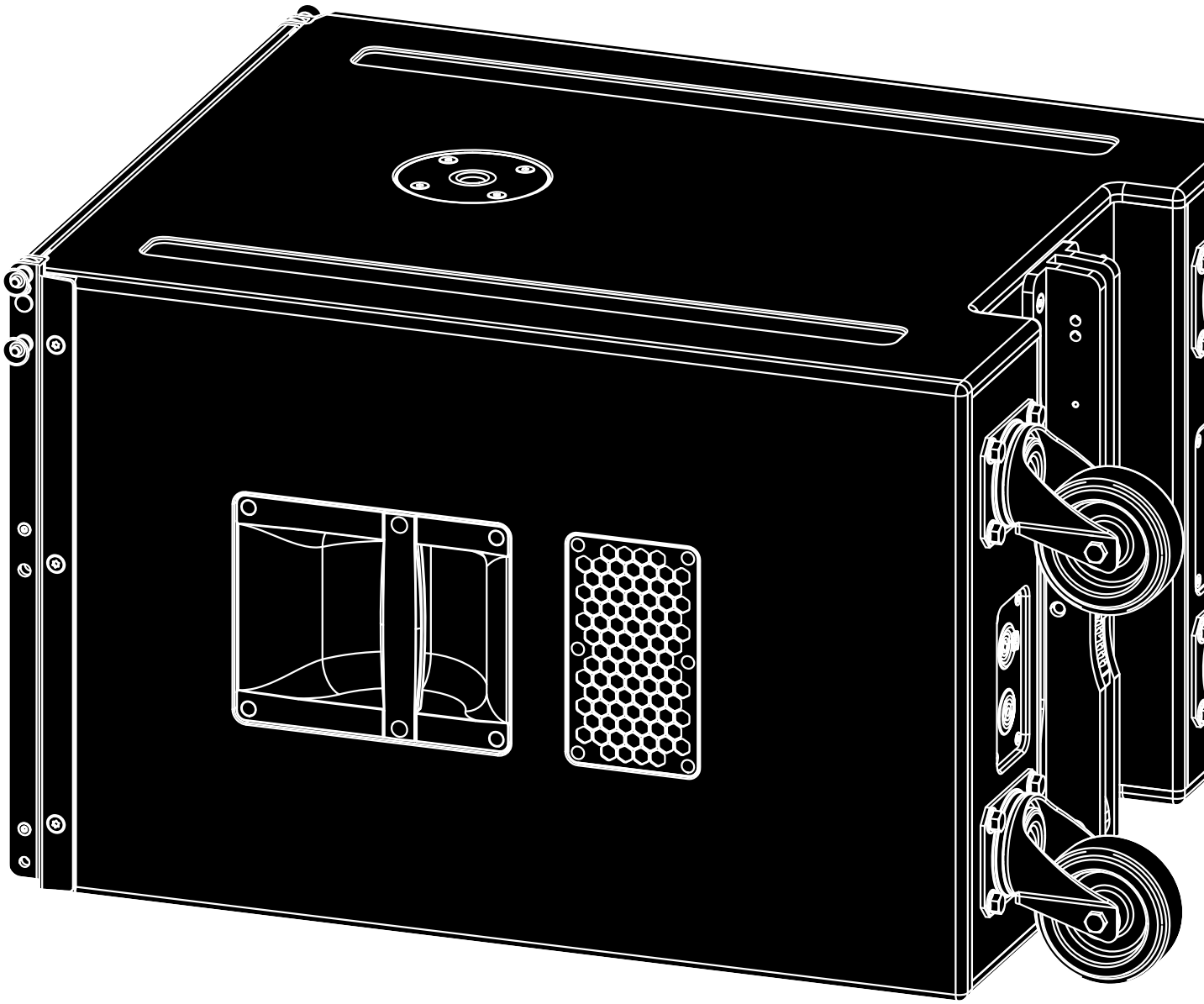
CCL-SUB
Manual 1.4 en



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All previous versions of this document are hereby no longer valid.

Version 1.4:
D25 added.

Refer to:
⇒ Chapter 2.1 “Intended use” on page 5
and
⇒ Chapter 2.4 “Technical specifications” on page 8.

General information

CCL-SUB Manual

Version: 1.4 en, 10/2025, D2781.EN .01

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Potential risk of personal injury

Never stand in the immediate vicinity of loudspeakers driven at a high level. Professional loudspeaker systems are capable of causing a sound pressure level detrimental to human health. Seemingly non-critical sound levels (from approx. 95 dB SPL) can cause hearing damage if people are exposed to it over a long period.

In order to prevent accidents when deploying loudspeakers on the ground or when flown, please take note of the following:

- When setting up the loudspeakers or loudspeaker stands, make sure they are standing on a firm surface. If you place several systems on top of one another, use straps to secure them against movement.
- Only use accessories which have been tested and approved by d&b for assembly and deployment. Pay attention to the correct application and maximum load capacity of the accessories as detailed in our specific "Mounting instructions" or in our "Rigging manuals".
- Ensure that all additional hardware, fixings and fasteners used for deployment are of an appropriate size and load safety factor. Pay attention to the manufacturers' instructions and to the relevant safety guidelines.
- Regularly check the loudspeaker housings and accessories for visible signs of wear and tear, and replace them when necessary.
- Regularly check all load bearing mounting devices.

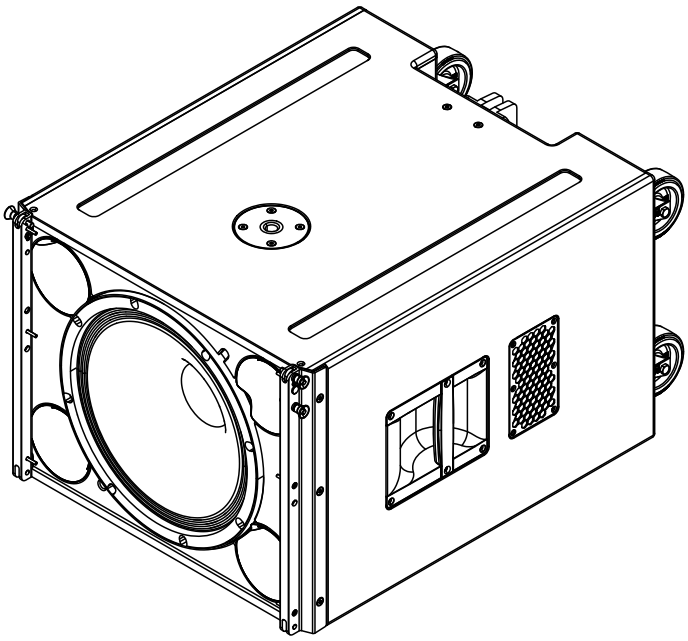
Potential risk of material damage

Loudspeakers produce a static magnetic field even if they are not connected or are not in use. Therefore make sure when erecting and transporting loudspeakers that they are nowhere near equipment and objects which may be impaired or damaged by an external magnetic field. Generally speaking, a distance of 0.5 m (1.5 ft) from magnetic data carriers (floppy disks, audio and video tapes, bank cards, etc.) is sufficient.

NOTICE!

Only operate d&b loudspeakers with correctly configured d&b amplifiers, otherwise there is a risk of damaging the loudspeaker components and the directional characteristics of the system cannot be achieved.

Recommended amplifiers
D25/D40/D90/D80



2.1 Intended use

NOTICE!
Possible risk of water ingress!

The passive LF cardioid design of the d&b CCL system requires two dedicated rear ports. For acoustic reasons, these ports cannot be fully water sealed.

When the system is deployed or installed in inclement weather with heavy rain, water ingress may occur.
While permanent damage is unlikely under normal conditions, water ingress can require cabinet disassembly for drainage to prevent damage to internal components.

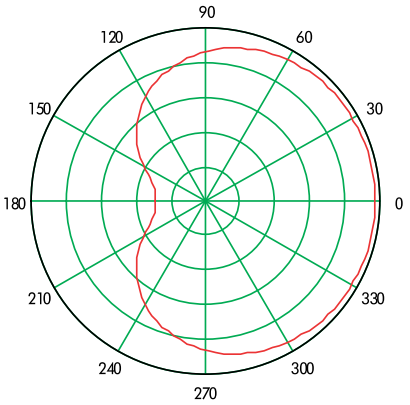
Users must exercise caution and take special precautions during outdoor application in bad weather conditions with heavy rainfall. In such situations, the systems must be deployed underneath a roof or a roof overhang, whenever possible.
If direct exposure to severe precipitation cannot be avoided, the rear of the array must be protected using suitable means (custom rain covers, tarpaulins, or plastic wraps).

Product description
The CCL-SUB is a compact high performance cardioid subwoofer. It houses two long excursion neodymium drivers in an integrated cardioid setup: a 15" driver in a bass-reflex design facing to the front and a 10" driver in a 2-chamber bandpass design radiating to the rear. The arrangement and tuning provide a cardioid dispersion pattern using a single amplifier channel.
Its frequency response extends from 39 Hz to 150/100 Hz.

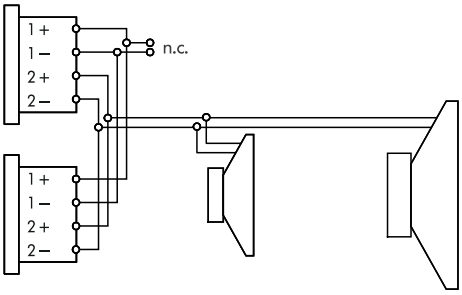
The cabinet enclosure is constructed from marine plywood and has an impact and weather protected PCP finish. The front and rear of the cabinet is protected by a rigid metal grill backed by an acoustically transparent and water repellent fabric.
Each side panel incorporates a handle and mounted on the rear panel are four heavy duty wheels.
Two runners extend from the rear to the front panel of the cabinet protecting the bottom panel against scratching.
Two correspondingly shaped recesses are incorporated in the top panel to accept these runners and prevent cabinet movement when stacking.
An M20 threaded flange in the top panel accepts a corresponding pole for the deployment of TOP cabinets.

CL-Series rigging components and arrays
The cabinets are mechanically connected using the rigging strands on both sides of the cabinet front and a central strand at the rear of the cabinet. All necessary rigging components are mounted on the cabinet and fold out or slide out when needed.

A detailed description of the rigging components is given in the respective rigging manuals.



Cardioid dispersion pattern



NLT4 F/M Connector wiring

Cardioid dispersion

Cardioid dispersion avoids unwanted energy behind the system and greatly reduces the excitation of the reverberant field at low frequencies providing the greatest accuracy of low frequency reproduction.

The subwoofers can be used as stand-alone solutions or in stacked combinations with a minimum distance of 60 cm (2 ft) between adjacent cabinets or between the subwoofers and a side wall. When positioned in front of walls, the minimum distance to rear walls should be 10 cm (0.3 ft) which is already maintained by the wheels mounted at the rear of the cabinet.

2.2 Connections

The cabinet is fitted with NLT4 F/M connectors. All four pins of both connectors are wired in parallel. The cabinet uses the pin assignments 2+/2–. Pins 1+/1– are designated to TOP loudspeakers. Using the male connector as the input, the female connector allows for direct connection to a second cabinet.

d&b LoadMatch

With the d&b four channel amplifier platform, the LoadMatch function enables the amplifier to electrically compensate for the properties of the loudspeaker cable used without the need for an additional sense wire. For applicable loudspeakers, LoadMatch is therefore independent of the connector type used.

2.3 Operation

Amplifier output mode(s): Dual Channel or Mix TOP/SUB		
Application	**Setup**	**Cabinets per channel**
CCL-SUB	CCL-SUB CCL-SUB AP	2 1

AP setup

In connection with d&b ArrayProcessing (AP), the AP setup contains the AP data that is generated by the d&b ArrayCalc simulation software and transferred to the applicable amplifiers via the d&b Remote network (OCA/AES70) using R1.
As soon as the data has been sent to the amplifiers, the AP setup is automatically activated.

Fln setup

The "Fln" setup (flown setup) for CCL-SUBs is meant to work as a low frequency extension for a flown CCL-SUB array, which can either be part of a mixed array or a pure SUB column next to or behind an CCL-TOP array.
Thus the setup is based on a higher cut-off frequency with improved phase alignment in the wider overlap region.

The setup allows both known configurations:

1. CUT for TOPs and Standard for SUBs.
2. Full range for TOPs and 100 Hz for SUBs.

The setup also includes the Coupling function to allow the configuration of TOPs and SUBs in one control group.
The INFRA mode is not applicable for this application and is therefore not available within this setup.

2.3.1 Controller settings

For acoustic adjustment the 100 Hz mode can be selected.

100 Hz mode

With the 100 Hz mode selected, the upper operating frequency of the system is reduced from 150 Hz to 100 Hz.

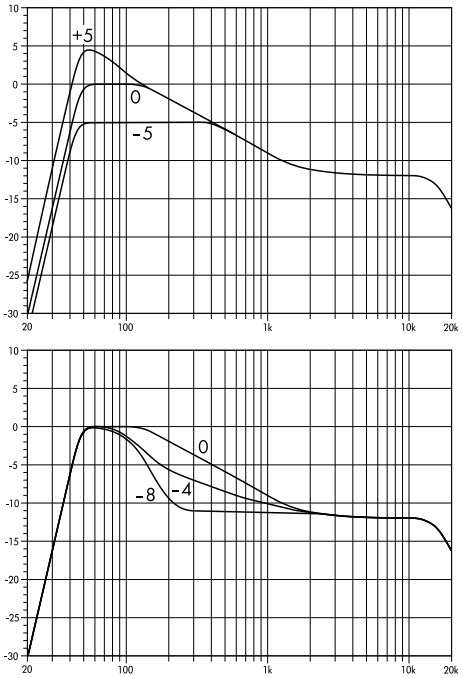
Coupling function

The Coupling function compensates for coupling effects between the cabinets by reducing the low and low-mid frequency level.

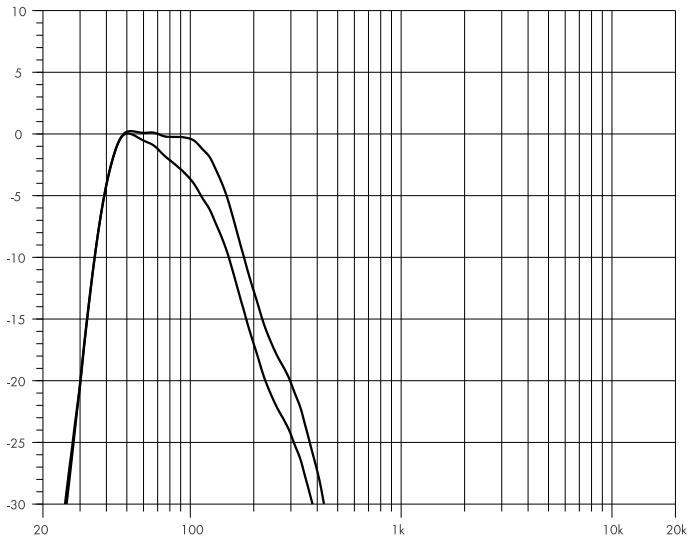
The function provides a two-stage filter (Low/Mid), which allows the independent shaping of the low and low-mid responses.

The characteristics of the Coupling function are shown in the diagram opposite. The standard setting (0) maintains the default array response. Coupling values can be set in the range from +5 to –5 (Low) and from 0 to –8 (Mid) in increments of 0.5.

> **Note:** Please note that all cabinets within the array should be operated with the same Coupling setting.
>
> When processed conventionally (Line/Arc), the larger the array the more attenuation by Coupling will be required to achieve a neutral response.
>
> When operated with ArrayProcessing (AP), an array will automatically be provided with the system target response, as shown in the graphic opposite. All coupling effects caused by the array length and shape are considered in the AP data. The Coupling function may still be used for additional corrections, for example of room properties or coupling effects between main hangs and outfills.



Frequency response correction of the Coupling function for low and low-mid frequency level*
*schematic diagram



CCL-SUB frequency response, Standard and 100 Hz modes

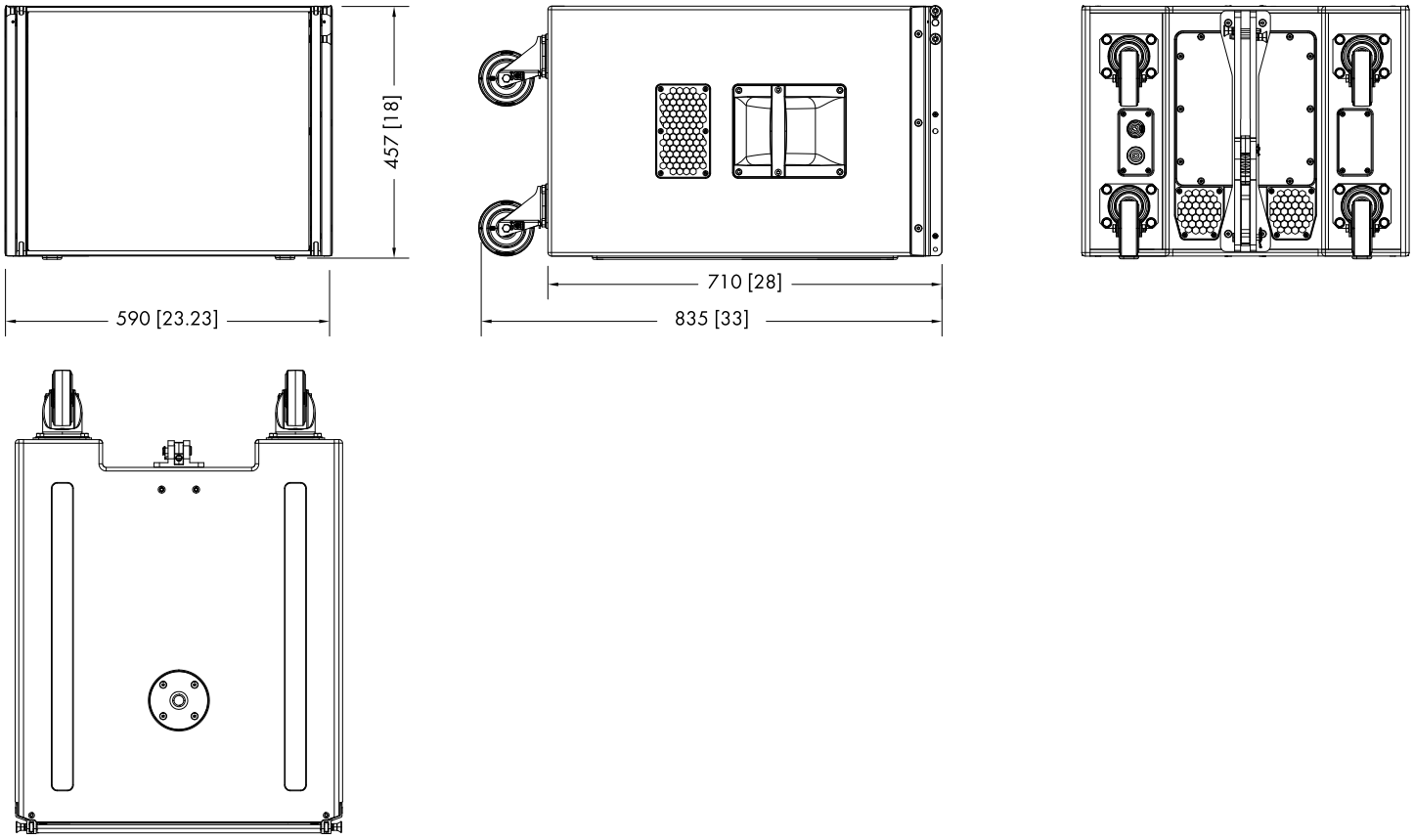
2.4 Technical specifications

System data

Frequency response (–5 dB Standard) ..... 39 Hz - 150 Hz
Frequency response (–5 dB 100 Hz mode) ..... 39 Hz - 100 Hz
Frequency response (–10 dB standard, IEC60268) ..... 35 Hz - 180 Hz
Frequency response (–10 dB 100 Hz mode, IEC60268) . 35 Hz - 140 Hz
Max. sound pressure (1 m, free field) .....
with D25/D20/25D/30D ..... 129 dB
with D40/D90/D80/40D ..... 132 dB
..... (SPLmax: Broadband signal IEC60268)

Loudspeaker data

Nominal impedance front/rear ..... 10 ohms
Power handling capacity (RMS/peak 10 ms) ..... 500/1200 W
Components ..... 1 x 15" driver front/1 x 10" driver rear
Connections ..... 1 x NLT4 F/M
Pin assignment ..... 2+/2–
Optional front splay ..... 0° or 2.5°
Weight ..... 44.5 kg (98 lb)



CCL-SUB cabinet dimensions in mm [inch]

3 Manufacturer's declarations

3.1 Conformity of loudspeakers

This declaration applies to:

- **d&b Z0884 CCL-SUB loudspeaker**

by d&b audiotechnik GmbH & Co. KG.

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

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

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

3.2 WEEE Declaration (Disposal)

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

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

WEEE-Reg.-Nr. DE: 13421928

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