C3

Manual (3.0E)

d&b audiotechnik

References in the manual

WARNING! **This refers to a potentially dangerous situation which may lead to personal injury.**

CAUTION! **This refers to a potentially dangerous situation which may lead to damage to the equipment.**

IMPORTANT! **This refers to a situation which may cause the equipment to malfunction.**

Symbols on the equipment

Please refer to the information in the operating manual.

WARNING!
Dangerous voltage!

General Information

C3 Manual

Version 3.0E, 10/2003, D2068.E.03

The information contained in this manual has been carefully checked for accuracy, at the time of going to press, however no guarantee is given with respect to the correctness.

d&b audiotechnik AG accepts no responsibility for any errors or inaccuracies that may appear in this manual or the products and software described in it.

Technical specifications, dimensions, weights and properties do not represent guaranteed qualities.

As manufacterers we reserve the right to make alterations and modifications within the framework of legal provisions, as well as changes aimed at improving quality.

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Safety precautions

Before you use our products, read the manual carefully and observe all the safety precautions. They will protect you and help to avoid equipment failures.

Keep this manual in a safe place so that it is available for future reference.

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

Information regarding use of loudspeakers

WARNING!

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 mobile deployment. Pay attention to the correct application and maximum load capacity of the accessories as detailed in our specific “Mounting instructions” or in our "Flying system and Rigging manuals”.

Ensure that all additional hardware, fixings and fasteners used for installation or mobile deployment are of an appropriate size and load safety factor. Pay attention to the manufacturers instructions and to the relevant safety guidelines.

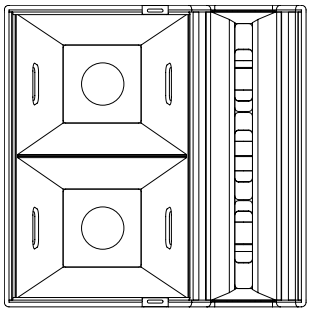
Regularly check the loudspeaker housings and accessories for visible signs of wear and tear, and replace them when necessary.

Regularly check all load bearing bolts in the mounting devices.

CAUTION!

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; a distance of more than 1 m (3 ft) may be necessary with computer and video monitors.

C3



The 2-way active C3 loudspeaker is an entirely hornloaded design. The cabinet houses 2 x 10" mid-range drivers and 3 x 1.3" HF compression drivers.

Utilizing a horizontal dispersion of 35° (above 900 Hz) and with a 5° vertical HF dispersion per cabinet, the C3 is used to build vertical columns producing a curved coherent wavefront using a minimum of two cabinets.

The C3 cabinet is constructed from marine plywood, fitted with steel handles, MAN CF4 stud plate rigging points and has an impact resistant paint finish. The front of the mid-range section of the loudspeaker cabinet is protected by a rigid metal grill fitted with a replaceable acoustically transparent foam, and the HF section is fitted with a foam block in the horn throat. Catches are fitted to the top and bottom of the cabinet for securing an optional transport lid E7908. Mounted on the rear panel are ratchet strap guide plates (kelping bars), two hinge plates and four heavy duty wheels.

CAUTION!

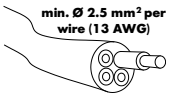
Only operate C3 cabinets with a d&b D12 amplifier in C3 mode or a P1200A mainframe fitted with a C3 controller module, otherwise there is a risk of damaging the loudspeaker components.

Connections

The C3 cabinet can be fitted with either one EP5 male or one NL4 connector. Pin equivalents of EP5 and NL4 connectors are listed in the table below.

	MF+	MF-	HF+	HF-	n.c.
EP5	1	2	3	4	5
NL4	1+	1–	2+	2–	

EP5 and NL4 pin assignments



IMPORTANT!

To avoid HF loss with long cable runs each cabinet must be connected to one of the amplifier outputs using separate cables with a minimum conductor size of 4 x 2.5 mm^2 (13 AWG).

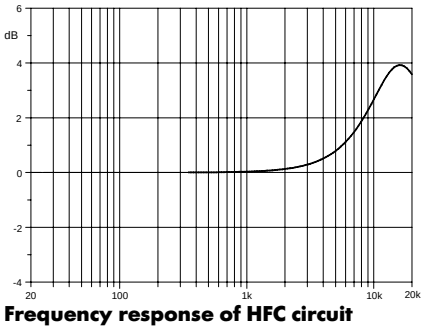
Operation with D12

The C3 cabinet is a 2-way active design employing both channels of the D12 power amplifier. In "2-Way Active" mode with the C3 setup enables up to two C3 cabinets to be be driven by the D12 amplifier.

Controller settings

For acoustic adjustment the settings HFC, LFC and CPL can be selected.

HFC circuit



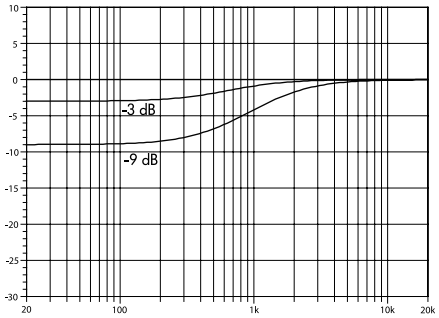
Frequency response of HFC circuit

Selecting the HFC mode (High Frequency Compensation), compensates for loss of high frequency energy due to absorption in air. The HFC switch should be used exclusively for those cabinets covering the very far field. This guarantees the correct sound balance between close and remote audience areas, whilst the amplifier driving the array can be fed with the same signal.

LFC circuit

In LFC mode (Low Frequency Compensation), the low frequency response is extended down to 80 Hz for speech reinforcement without subwoofers.

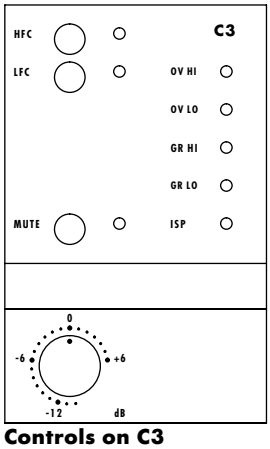
CPL circuit



Frequency response of CPL circuit

The CPL (Coupling) circuit compensates for coupling effects between the cabinets when building closely coupled arrays. CPL begins gradually at 1 kHz, with maximum attenuation below 400 Hz, providing a balanced frequency response when the C3 cabinet are used in arrays of two or more. The function of the CPL circuit in the D12 amplifier is shown in the diagram opposite and can be set in dB attenuation values between –9 and 0.

Operation with P1200A



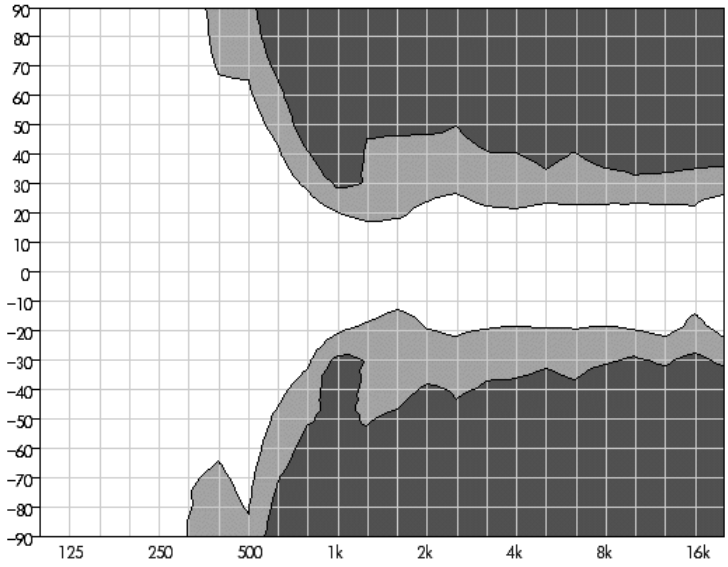
Controls on C3 controller module

The C3 cabinet is a 2-way active design employing both channels of the P1200A power amplifier, fitted with the C3 controller module. A P1200A mainframe can drive two C3 cabinets.

The HFC and LFC settings are available. The characteristics of the HFC and LFC settings are explained under the previous section "Operation with D12 - Controller settings".

Dispersion characteristics

The diagram below shows dispersion angle vs frequency, plotted using lines of equal sound pressure (isobars) at –6 dB and –12 dB. The nominal horizontal dispersion of 35° is maintained above 900 Hz.



C3 horizontal isobar diagram

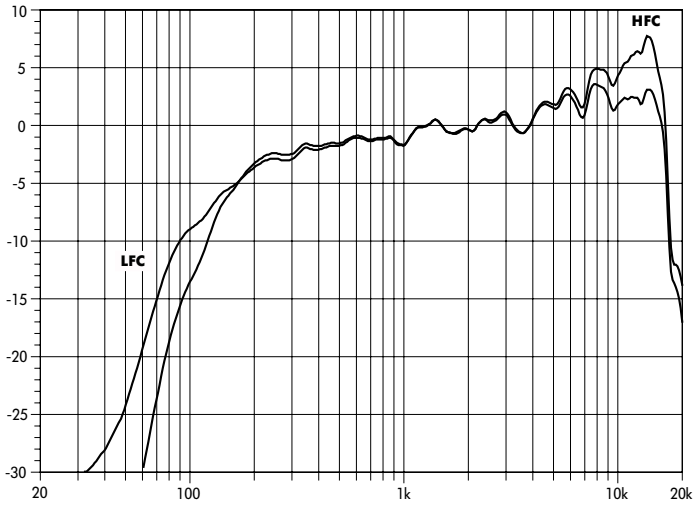
Technical specifications

C3 system data

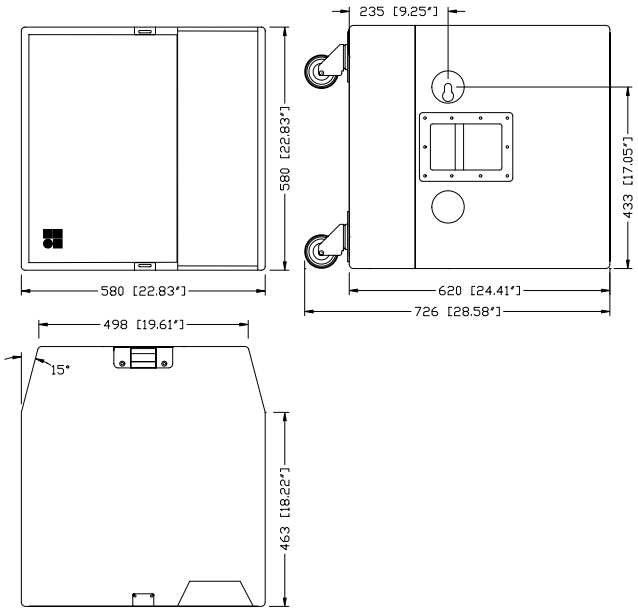
Frequency response (–5 dB standard, two cabinets).....130 Hz - 16 kHz
Frequency response (–5 dB LFC Mode, two cabinets).....80 Hz - 16 kHz
Max. sound pressure (1 m, free field) with D12.....144 dB
Max. sound pressure (1 m, free field) with P1200A.....143 dB
(SPLmax peak, pink noise test signal with crest factor of 4)
Polarity to controller INPUT (XLR pin 2: +/3: –).....LF: +/HF: +

C3 loudspeaker

Nominal impedance (LF/HF).....4 ohms/5.3 ohms
Power handling capacity LF (RMS / peak 10 ms).....500/2000 W
Power handling capacity HF (RMS / peak 10 ms).....150/600 W
Nominal dispersion angle (hor. x vert.).....35° x 5°
Connections.....1 x EP5
.....(optional 1 x NL4)
Pin assignments.....EP5: 1/2 MF; 3/4 HF
.....NL4: 1+/1– MF; 2+/2– HF
Weight.....71 kg (156 lb)



C3 frequency response, standard, LFC and HFC mode (single cabinet)



C3 cabinet dimensions in mm [inch]

EU declaration of conformity (CE symbol)

CE

EU conformity of loudspeakers

This declaration applies to loudspeakers manufactured by d&b audiotechnik AG and includes the types listed in the table below:

– **C3 Z2230**

All production versions of these types 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 following EC directives including all applicable amendments:

– **89/336 Electromagnetic Compatibility**

The following standards have been applied:

– **DIN EN 55013:08-1991**
– **DIN EN 55020:05-1995**
– **DIN EN 50082-1:03-1993**

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