E3

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

E3 Manual

Version 3.0E, 10/2003, D2072.E.03

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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.

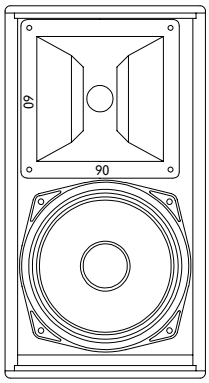
Regularly check the loudspeaker housings and accessories for visible signs of wear and tear, and replace them when necessary.

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.

E3



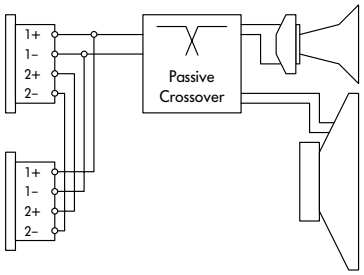
The E3 loudspeaker is a full range, two way bass-reflex enclosure. Fitted with a single 6.5" LF driver passively connected to a 1" HF compression driver coupled to a constant directivity horn with a 90° x 60° dispersion. Illustrated in the drawing on the left is an E3 with the standard 90° horizontal horn configuration. The horn can be rotated through 90° for a reversed 60° x 90° dispersion.

The E3 cabinet is constructed from marine plywood with an impact resistant paint finish. The front of the loudspeaker cabinet is fitted with a rigid metal grill covered with a replaceable acoustically transparent foam. A pair of M8 threaded inserts for attaching installation hardware are provided on each panel of the E3 cabinet.

CAUTION!

Only operate E3 cabinets with a d&b D12 or E-PAC amplifier in E3 mode or a P1200A mainframe fitted with E3 controller modules, otherwise there is a risk of damaging the loudspeaker components.

Connections



Connector wiring

The E3 cabinet is fitted with two NL4 connectors. All four pins of both connectors are wired in parallel. The E3 uses the pin assignments 1+/1–. Pins 2+/2– are designated to active d&b subwoofers.

Using one connector as the input, the second connector allows for direct connection to additional cabinets.

The connector plate is fitted to the E3 rear panel. Next to it, on the left hand side panel, is a metal blank plate with the cabinet details and serial number. The connector and blank plates can be swapped over to allow mounting brackets to be fitted to the back panel of the cabinet or to allow it to be placed on its back as a stage monitor.

The plates are removed by undoing the four 2.5 mm hex head screws securing each panel. The connector wiring is disconnected in order to swap the panels.

IMPORTANT!

Make sure when reconnecting the wiring that the red wire goes to pin 1+ and the black wire to pin 1– on the NL4 connector board.

Operation with D12

Selecting E3 mode in the D12 enables up to four E3 cabinets to be driven by each channel.

When the D12 is operated in "Mix TOP/SUB" mode the E3 cabinet and a respective active subwoofer can be linked together locally and fed by a single 4-wire cable from either amplifier output connector.

Controller settings

For acoustic adjustment the settings CUT and HFA can be selected.

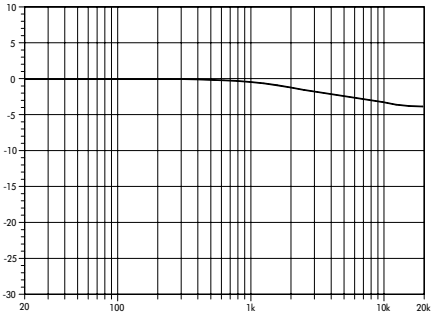
CUT circuit

Set to CUT, a high pass filter with a 110 Hz cut off frequency is inserted in the controller signal path. The E3 is now configured for use with d&b active subwoofers.

HFA circuit

In HFA mode (High Frequency Attenuation), the HF response of the E3 is rolled off. The HFA provides a natural, balanced frequency response when a unit is placed close to listeners in near field or delay use.

High Frequency Attenuation begins gradually at 1 kHz, dropping by approximately 3 dB at 10 kHz. This roll off mimics the decline in frequency response experienced when listening to a system from a distance in a typically reverberant room or auditorium.



Frequency response of HFA circuit

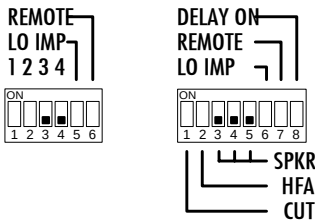
Operation with E-PAC

To drive the E3 cabinet the E-PAC has to be configured to E3 mode.

For an E-PAC version 1 or 2, the configuration is selected by setting the appropriate DIP switches on the rear panel.

For an E-PAC version 3, the configuration is set via the encoder in conjunction with an LCD. Selecting E3 mode enables up to two E3 cabinets to be driven at an output power of 300 Watts. LO IMP mode allows the E-PAC to drive four E3 cabinets with a 6 dB reduction of input level to the loudspeakers.

The CUT and HFA settings are available on versions 2 and 3. The characteristics of the CUT and HFA settings are explained under the previous section "Operation with D12 - Controller settings".

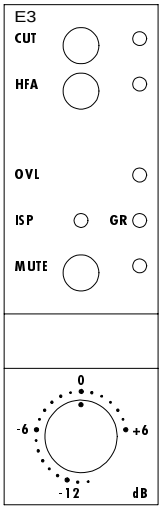


E-PAC version 1, E-PAC version 2
E-PAC Configuration for E3

Operation with P1200A

Up to four E3 cabinets can be driven by each P1200A power amplifier channel fitted with an E3 controller module.
Fitting one E3 and one subwoofer controller module allows a single mainframe to drive four E3s and two active subwoofer cabinets. All cabinets can be linked together locally and fed by a single 4-wire cable from either mainframe output connector.

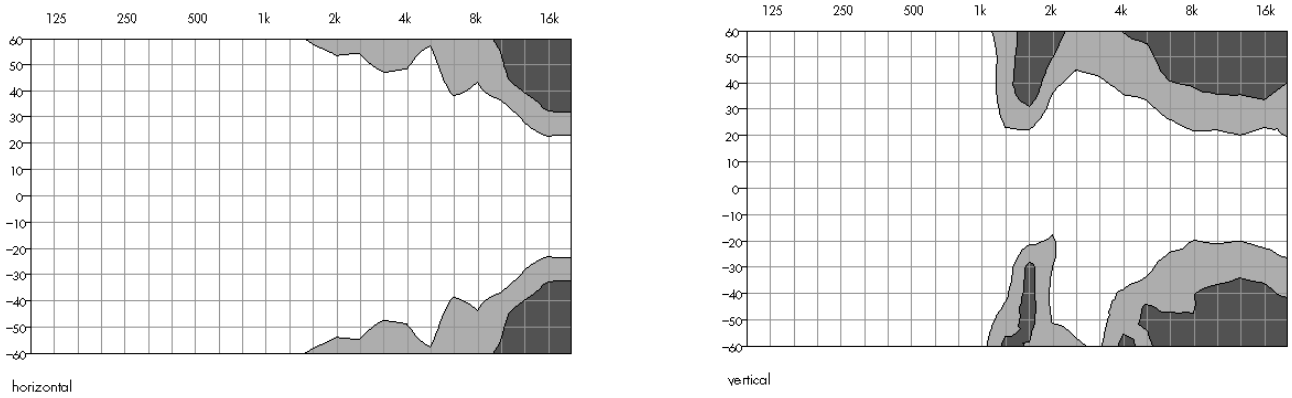
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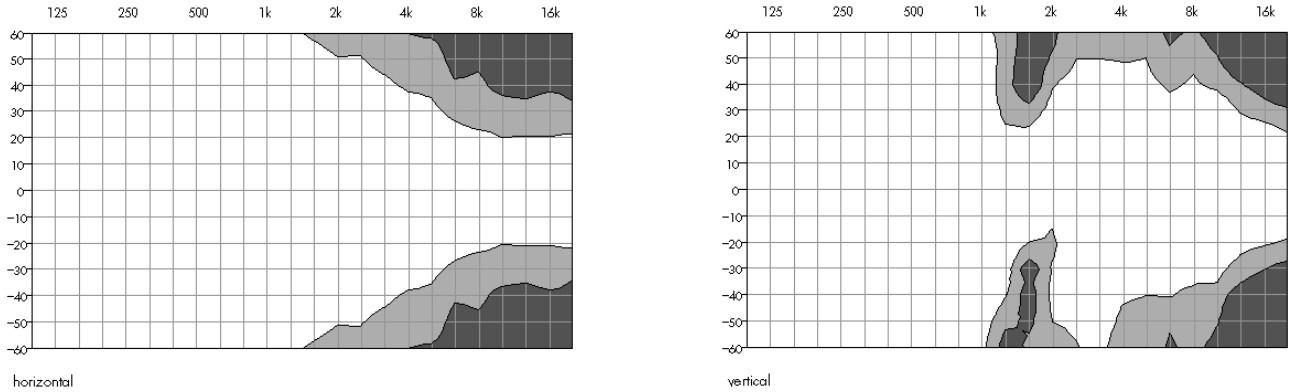
Controls on E3
controller module

Dispersion characteristics

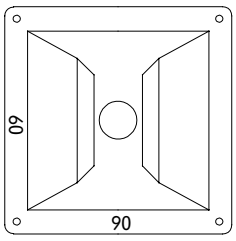
The diagrams below show dispersion angle vs frequency plotted using lines of equal sound pressure (isobars) at –6 dB and –12 dB.



E3 isobar diagram configuration 90° horizontal (standard)



E3 isobar diagram configuration 90° vertical



Altering the HF horn dispersion

The E3 HF horn has a square flange allowing it to rotate through 90°. Two dispersion angles, 90° and 60°, are engraved on the flange, the value on the horizontal edge indicates the loudspeakers horizontal dispersion angle.

To change the horn dispersion, first remove the front grill by undoing the Allen screws (M4x25 mm) at the top and bottom of the grill using a 2.5 mm Allen key. Using a 3 mm Allen key, undo the 4 Allen screws (M4x25 mm) which hold the horn in place. The horn can then be rotated through 90°, refastened and the front grill replaced.

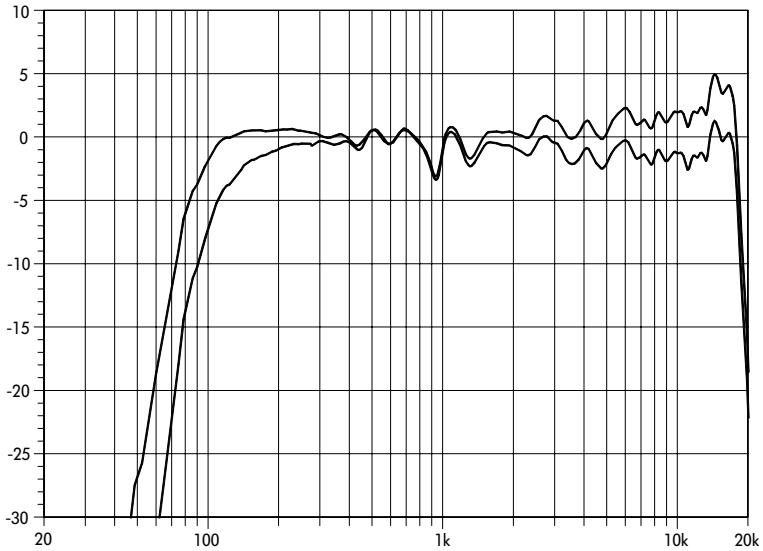
Technical specifications

E3 system data

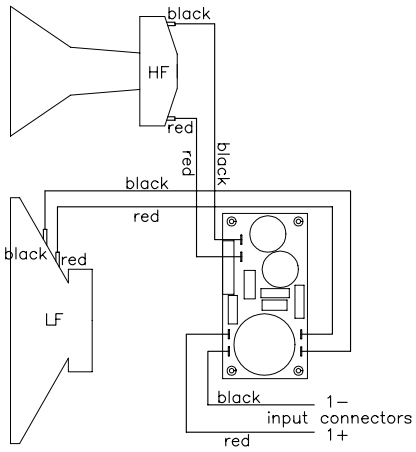
Frequency response (–5 dB) ..... 80 Hz - 18 kHz
Max. sound pressure (1 m, free field) with D12 ..... 123 dB
Max. sound pressure (1 m, free field) with E-PAC ..... 122 dB
Max. sound pressure (1 m, free field) with P1200A ..... 122 dB
(SPLmax peak, pink noise test signal with crest factor of 4)
Input level (100 dB SPL / 1 m) ..... –10 dBu
Polarity to controller INPUT (XLR pin 2: + / 3: –) ..... LF: + / HF: –

E3 loudspeaker

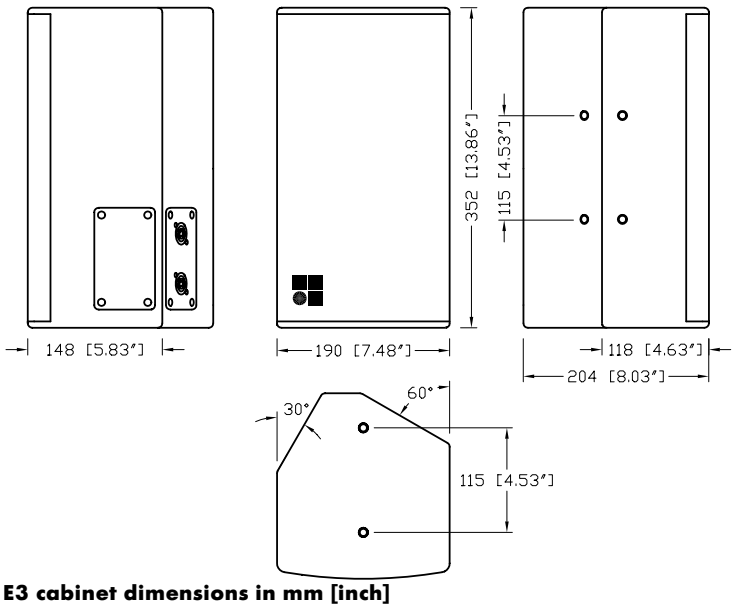
Nominal impedance ..... 16 ohms
Power handling capacity (RMS / peak 10 ms) ..... 120 / 480 W
Nominal dispersion angle (hor. x vert.) ..... 90° x 60°
..... (rotatable through 60° x 90°)
Connections ..... 2 x NL4
Pin assignments ..... 1+ / 1–
Weight ..... 7.2 kg (16 lb)



E3 frequency response standard CUT and HFA settings



E3 wiring diagram



E3 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:

– **E3 Z0300**

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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