

**E3**

**Manual (3.1 EN)**



## Symbols on the equipment

Please refer to the information in the operating manual.

**WARNING!**  
**Dangerous voltage!**

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## General Information

E3 Manual

Version 3.1 EN, 03/2008, D2072.E.03

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

When reselling this product, hand over this manual to the new customer.

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

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## Safety precautions



### WARNING!

#### Information regarding use of loudspeakers

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

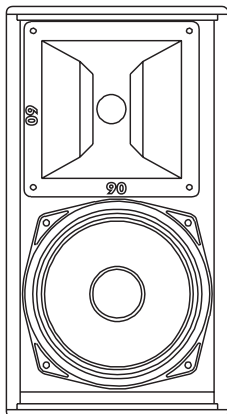


Fig. 1: E3 loudspeaker

The E3 loudspeaker is a full range, two way bass-reflex enclosure which is fitted with a single 6.5" LF driver passively connected to a 1" HF compression driver. This is 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. Two mounting locations are incorporated for the connector plate to facilitate various deployment options. Eight M8 threaded inserts are provided for mounting brackets and rigging.

**NOTICE:** Only operate E3 cabinets with a correctly configured d&b amplifier, otherwise there is a risk of damaging the loudspeaker components.

### Connections

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.

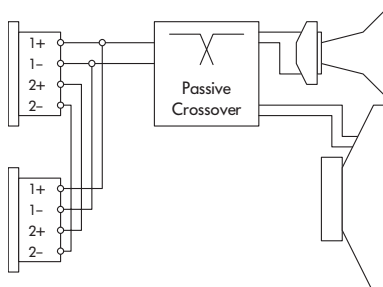


Fig. 2: Wiring of the NL4 connectors

### Swapping the connector and blank plates

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.

To swap the connector and blank plates, proceed as follows:

Tools required: 2.5 mm Allen key.

- Remove the connector plate by undoing the four 2.5 mm hex head screws and disconnecting the connector wiring.
- Undo the four 2.5 mm hex head screws securing the blank plate and remove the plate.
- Swap the panels. To refit the connector plate at the desired position, reconnect the wiring (red: 1+, black: 1-).
- Refit the connector plate and refasten the screws.  
**NOTICE:** Ensure the gasket of the plate is in the correct position.
- Refit the blind plate in the same manner.

## Operation with D6 or D12

Select the controller setup E3.

Within the D12 amplifier this is available in "Dual Channel" and "Mix TOP/SUB" mode.

Up to a total of four E3 loudspeakers can be driven by each D6 or D12 amplifier channel.

### Controller settings

For acoustic adjustment the functions CUT, HFA and CPL can be selected.

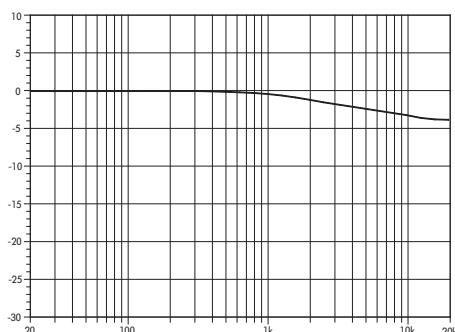
#### CUT circuit

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.

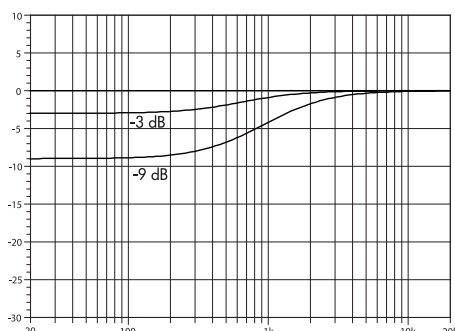
#### HFA circuit

In HFA mode (High Frequency Attenuation), the HF response of the E3 system is rolled off. The HFA circuit 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.



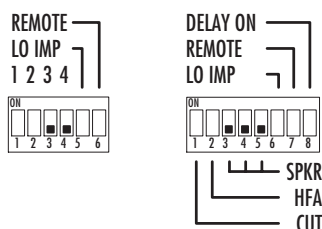
**Fig. 3: Frequency response correction of HFA circuit**



**Fig. 4: Frequency response correction of CPL circuit**

#### 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 250 Hz, providing a balanced frequency response when E3 cabinets are used in arrays of two or more. The function of the CPL circuit is shown in the diagram opposite and can be set in dB attenuation values between -9 and 0 dB.



**Version 1      Version 2**  
**Fig. 5: E-PAC Configuration for E3**

## 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.

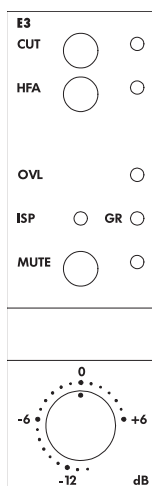
Selecting E3 mode enables the E-PAC to drive up to two E3 cabinets. LO IMP mode allows the E-PAC to drive four E3 cabinets with a 6 dB reduction of input level to the loudspeakers.

The CUT and HFA settings are available. The characteristics of the CUT and HFA settings are explained in the previous section "Operation with D6 or D12 - Controller settings".

## 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

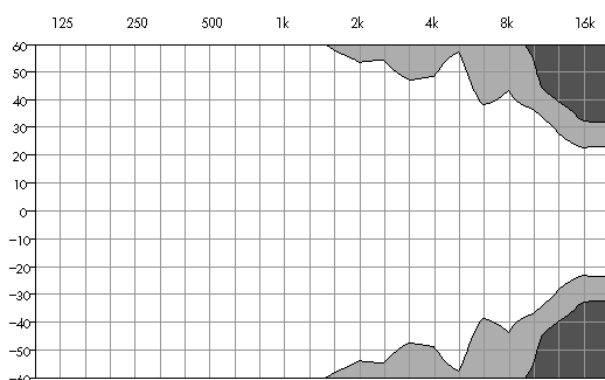
The CUT and HFA settings are available. The characteristics of the CUT and HFA settings are explained in the previous section "Operation with D6 or D12 - Controller settings".



**Fig. 6: Controls on E3 controller module**

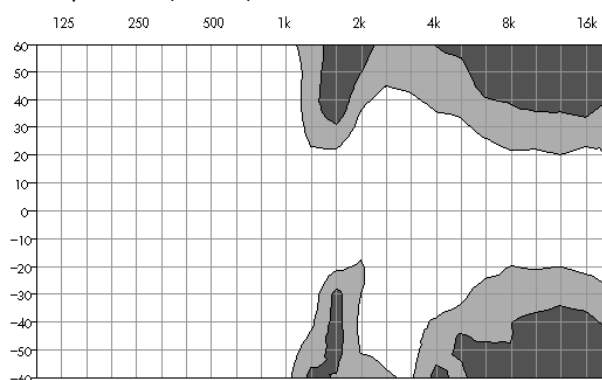
## Dispersion characteristics

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

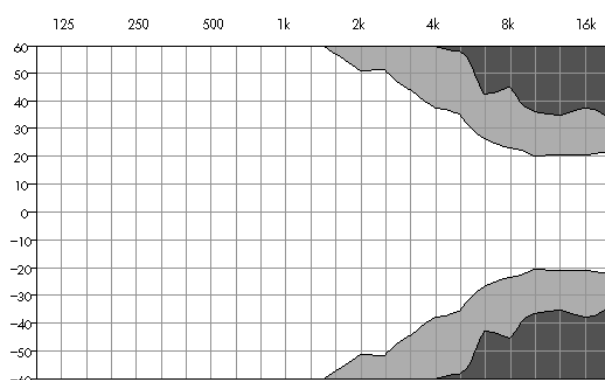


horizontal

**Fig. 7: E3 isobar diagram configuration 90° horizontal (standard)**

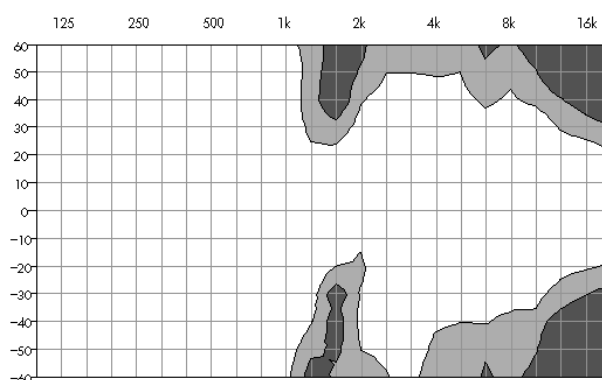


vertical

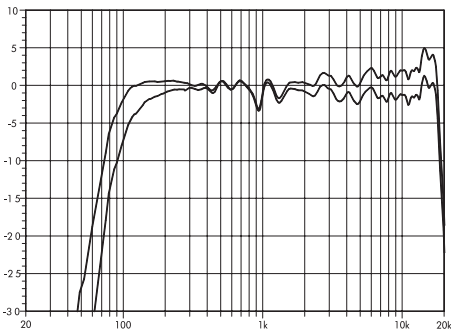
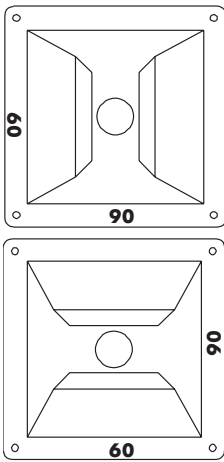


horizontal

**Fig. 8: E3 isobar diagram configuration 90° vertical**



vertical



**Fig. 9: E3 frequency response standard and CUT settings**

### Altering the HF horn dispersion

The E3 HF horn can be rotated through 90°. Two dispersion angles, 90° and 60°, are engraved on the flange. The value on the horizontal edge indicates the loudspeaker's horizontal dispersion angle.

Tools required: Phillips screwdriver, 3 mm Allen key.

- Remove the front grill by undoing the two Allen screws (M4x25 mm) at the top and bottom of the grill.
- Undo the four Allen screws (M4x25 mm) which hold the horn in place and rotate the horn through 90°.
  - NOTICE:** Ensure the gasket of the horn is in the correct position.
- Refasten the horn and refit the front grill.

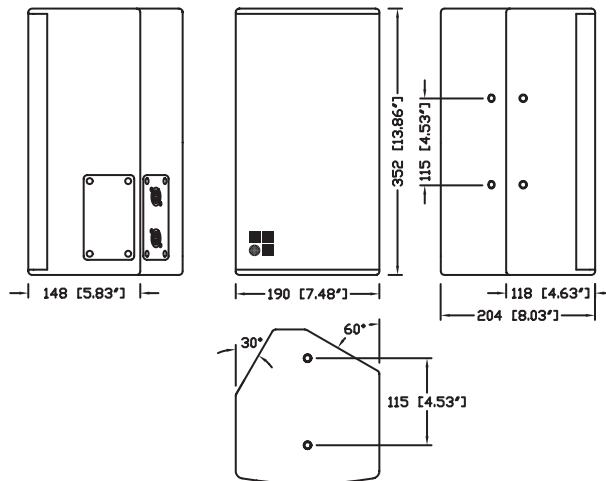
### Technical specifications

#### 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 D6.....	122 dB
Max. sound pressure (1 m, free field) with P1 200A.....	122 dB
	(SPLmax peak, pink noise test signal with crest factor of 4)
Input level (100 dB SPL / 1 m).....	-10 dBu

#### E3 loudspeaker

Nominal impedance.....	16 ohms
Power handling capacity (RMS / peak 10 ms).....	120/480 W
Nominal dispersion angle.....	90° x 60°
	(rotatable through 60° x 90°)
Components.....	6.5" loudspeaker,
	1" compression driver with CD horn
	Passive crossover network
Connections.....	2 x NL4
Pin assignments.....	1+/1-
Weight.....	7.2 kg (15.9 lb)



**Fig. 10: E3 cabinet dimensions in mm [inch] and angle ranges**

## Manufacturer's declarations



### EU conformity of loudspeakers (CE symbol)

This declaration applies to:

#### **d&b E3 loudspeaker, Z0300**

manufactured by d&b audiotechnik GmbH.

All production versions of this type 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](http://www.dbaudio.com).

### 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.