

M4

Manual 1.8 en



Symbols on the equipment

Please refer to the information in the operating manual.



WARNING!
Dangerous voltage!

Contents

Safety precautions.....	3
Information regarding use of loudspeakers.....	3
M4.....	4
Connections.....	4
Operation.....	5
Controller settings.....	6
Operation with E-PAC.....	6
Dispersion characteristics.....	7
Altering the dispersion characteristics.....	7
Technical specifications.....	8
Manufacturer's declarations.....	9
EU conformity of loudspeakers (CE symbol).....	9
WEEE Declaration (Disposal).....	9

General Information

M4 Manual

Version 1.8 en, 03/2016, D2990.EN .01

Copyright © 2016 by d&b audiotechnik GmbH; all rights reserved.

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.

d&b audiotechnik GmbH
Eugen-Adolff-Strasse 134, D-71522 Backnang, Germany
Telephone +49-7191-9669-0, Fax +49-7191-95 00 00
E-mail: docadmin@dbaudio.com, Internet: www.dbaudio.com

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.

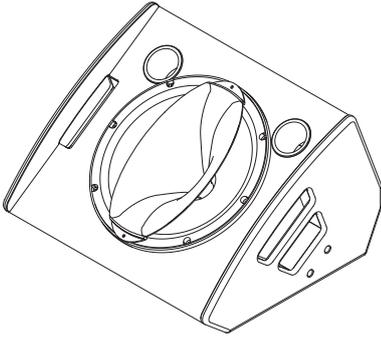
Regularly check the loudspeaker housings and accessories for visible signs of wear and tear and replace them when necessary.

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.

M4



M4 loudspeaker

The M4 is a high performance stage monitor employing an integrated 15"/1.3" exit coaxial driver design with neodymium magnet and constant directivity horn loading. Its dispersion of 50° x 70° (hor. x vert.) provides an accurately defined coverage area on stage. Used upright the M4 serves as a powerful front PA speaker (70° x 50°) for various applications.

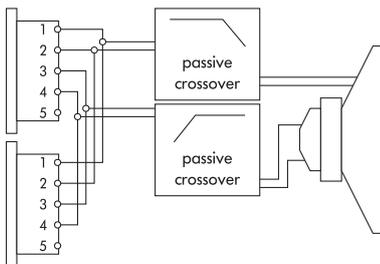
The M4 is a two-way design with a built-in passive crossover network. It can optionally be operated in two-way active mode just by changing the configuration of the D12 amplifier without any modifications to the loudspeaker. Its frequency response extends from 55 Hz to above 17 kHz.

The M4 cabinet is constructed from marine plywood and has an impact resistant paint finish. The front of the loudspeaker cabinet is protected by a rigid metal grill in front of a replaceable acoustically transparent foam. The side panels incorporate a pair of handles, a pole mount socket and four M10 threaded inserts to connect to different rigging devices and brackets. Two runners recessed in its bottom panel protect the cabinet from scratching and prevent unwanted movement.

Connections

The M4 cabinet is fitted with a pair of EP5 connectors. All pins of both connectors are wired in parallel. Using the male connector as the input, the female connector allows for direct connection to additional loudspeakers.

The M4 can be supplied with NL4 output connectors as an option. Pin equivalents of EP5 and NL4 connectors are listed in the table below.



Connector wiring

	LF +	LF -	HF +	HF -	n.a.
EP5	1	2	3	4	5
NL4	1+	1-	2+	2-	n.a.

Operation

NOTICE!

Only operate d&b loudspeakers with a correctly configured d&b amplifier, otherwise there is a risk of damaging the loudspeaker components.

Applicable d&b amplifiers:

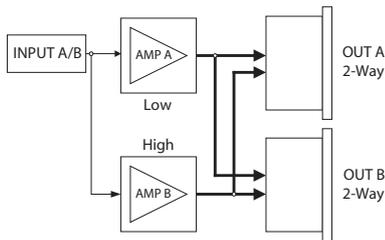
D80/D20/D12/D6/10D/30D.

Application	Setup	Cabinets per channel
M4 passive	M4 (Dual Channel or Mix TOP/ SUB mode)	2
M4 active	M4 (2-Way Active mode)	2

The applicable d&b amplifiers (excluding D6) allow the M4 cabinet to be driven either in "2-Way Active" mode or in passive mode.

Operation with D6

Up to a total of two M4 loudspeakers can be passively driven by each D6 amplifier channel.



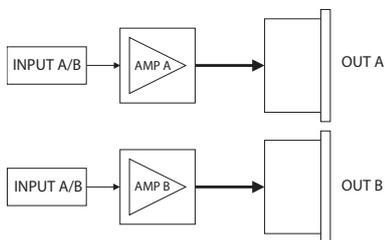
D12 Input/Output routing "2-Way Active"

Active operation ("2-Way Active")

Selecting "2-Way Active" mode with the M4 setup enables up to two M4 cabinets to be driven actively by the respective amplifier. In applications with low continuous levels and low ambient temperatures up to three cabinets may be connected.

In "2-Way Active" mode separate LF and HF signals are routed to the amplifier channels. Pins 1/2 of both EP5 output connectors (NL4: 1+/1-) carry the LF signal, pins 3/4 (NL4: 2+/2-) carry the HF signal. The output connector pin assignment is set automatically when "2-Way Active" mode is selected.

The input signal can be fed either to INPUT A or to INPUT B and is routed (linked) to both amplifier channels internally.



D12 Input/Output routing "Dual Channel"

Passive operation ("Dual channel" mode)

Selecting "Dual channel mode" with the M4 setup enables up to two M4 cabinets to be driven by the respective channel. In applications with low continuous levels and low ambient temperatures up to three cabinets per channel may be connected.

In "Dual channel" mode each amplifier channel drives all output pins of its respective output connector thus driving the cabinet's HF and LF sections via their passive crossover networks. Pins 1/3 of the EP5 output connector (NL4: 1+/2+) carry the positive and pins 2/4 (NL4: 1-/2-) carry the negative components of the signal.

Passive operation ("Mix TOP/SUB" mode)

With its standard connector wiring the M4 requires 4 wires to be driven and therefore cannot be used in "Mix TOP/SUB mode". However, for permanent passive use with dedicated cabling the M4 setup is also available in "Mix TOP/SUB mode".

Controller settings

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

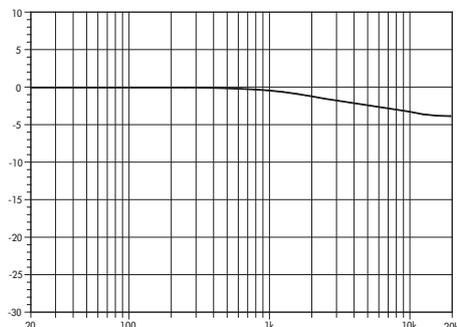
CUT circuit

Set to CUT, the M4 low frequency level is reduced. The M4 is now configured for use with the Q-SUB, J-SUB or d&b C-Series subwoofers.

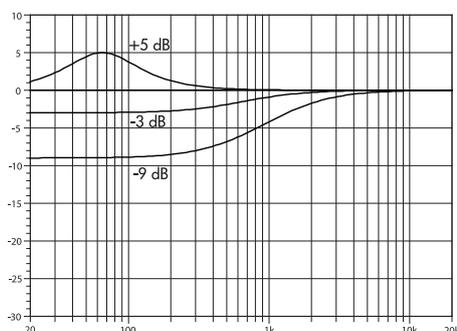
HFA circuit

In HFA mode (High Frequency Attenuation), the HF response of the M4 system is rolled off. The HFA circuit provides a natural, balanced frequency response when a cabinet 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 correction of HFA circuit



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 400 Hz, providing a balanced frequency response when M4 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.

Positive CPL values create an adjustable low frequency boost (0 to +5 dB) and can be set when the M4 is used as a full-range PA speaker. For a single cabinet in free space conditions a value of +3 dB is recommended.

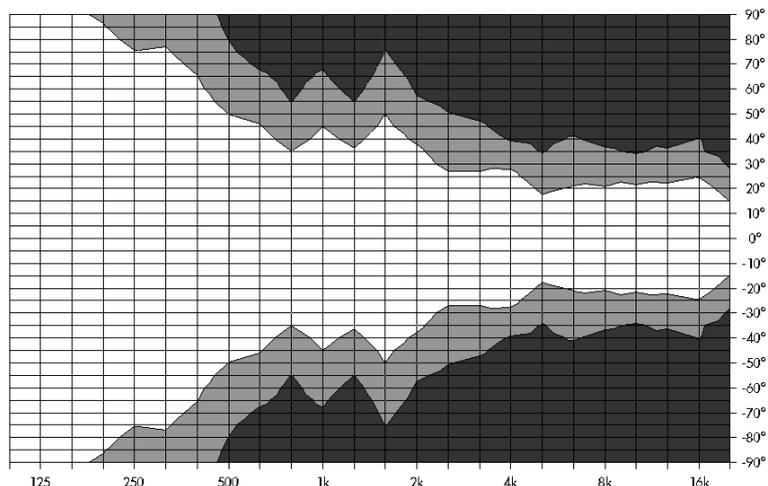
Operation with E-PAC

Selecting M4 mode enables the E-PAC to drive one M4 loudspeaker. LO IMP mode configures the E-PAC to drive a maximum of two M4 loudspeakers with a 6 dB reduction in input level to the loudspeakers.

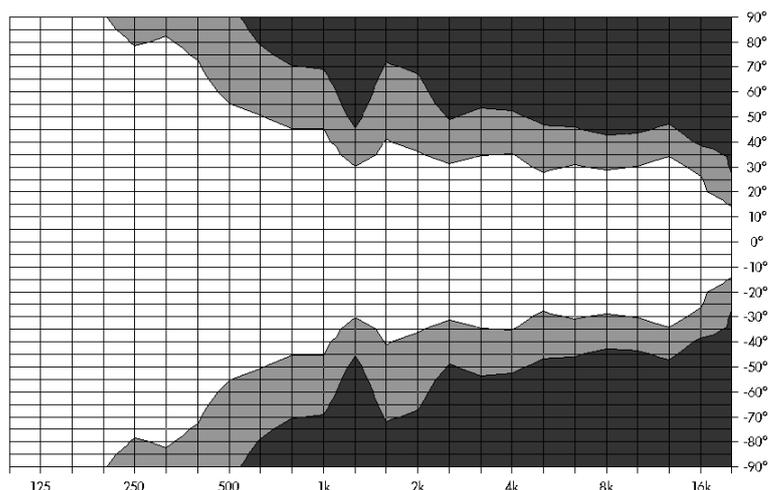
For acoustic adjustment the CUT and HFA settings are available. The characteristics are described in the previous section "Controller settings".

Dispersion characteristics

The graphs below show dispersion angle over frequency of an M4 cabinet plotted using lines of equal sound pressure (isobars) at -6 dB and -12 dB. The characteristics refer to monitor operation. When used as a front-of-house system, the horizontal dispersion corresponds to the vertical plot and vice versa.



**Isobar diagram M4 horizontal, monitor setup
(vertical, front-of-house setup)**



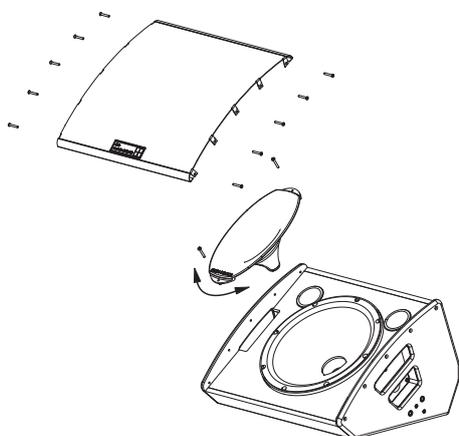
**Isobar diagram M4 vertical, monitor setup
(horizontal, front-of-house setup)**

Altering the dispersion characteristics

The dispersion characteristics of the driver and horn assembly can be rotated in increments of 45° for dedicated installation applications. Proceed as follows:

Tools required: Torque wrench with Torx nut #25

1. Undo the 10 screws holding the front grill and remove the front grill.
2. Undo the screws holding the horn flange and the two opposite screws at the 15" driver for the desired orientation.
3. Rotate the horn to the desired orientation.
4. Refit all screws and tighten them using a torque setting of 2 Nm.
5. Refit the front grill and tighten all screws using a torque setting of 4 Nm.



Altering the dispersion characteristics

Technical specifications

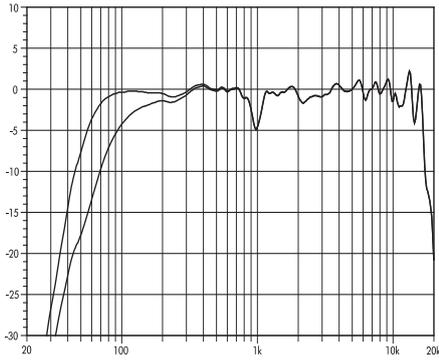
M4 system data - passive mode / 2-Way Active mode

Frequency response (-5 dB standard)	55 Hz ... 17 kHz
Frequency response (-5 dB CUT mode)	95 Hz ... 17 kHz
Max. sound pressure (single cabinet, 1 m, free field)	
with D6 passive mode	134 dB
with 10D	134dB / 135 dB
with D12/D20/30D	138 dB / 140 dB
with D80	138 dB / 140 dB

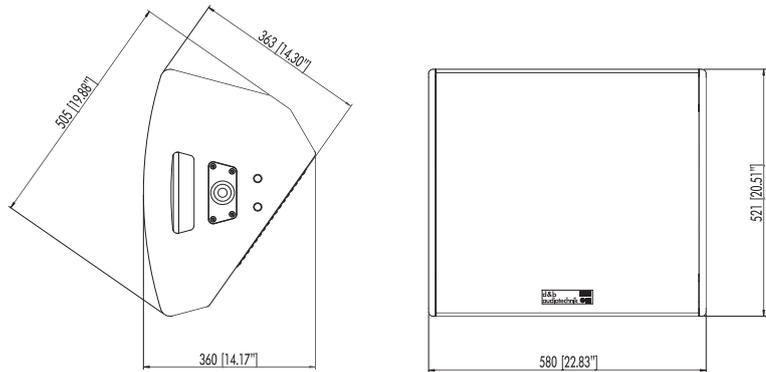
(SPLmax peak, pink noise test signal with crest factor of 4)

M4 loudspeaker

Nominal impedance	8 ohms
Power handling capacity (RMS / peak 10 ms)	400/1600 W
Nominal dispersion angle (hor. x vert., monitor setup)	50° x 70°
Components	15" driver with neodymium magnet coaxial 1.3" exit compression driver with 3" coil and CD horn
Connections	Passive crossover network 2 x EP5 (optional 2 x NL4)
Pin assignments	EP5: 1: LF+/2: LF-/3: HF+/4: HF- NL4: 1+: LF+/1-: LF-/2+: HF+/2-: HF-
Weight	20 kg (44 lb)



M4 frequency response, standard and CUT settings



M4 cabinet dimensions in mm [inch]

Manufacturer's declarations



EU conformity of loudspeakers (CE symbol)

This declaration applies to:

- **M4 loudspeaker Z0800**

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.

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.

