

M2

Manual (5.0E)

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

M2 Manual

Version 5.0E, 10/2003, D2092.E.05

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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 manufacturers 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.

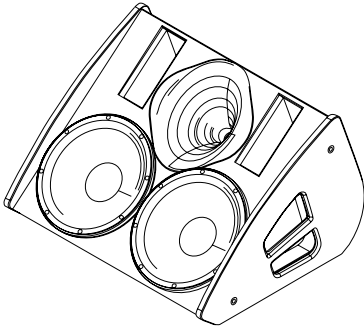
Regularly check the loudspeaker housings and accessories for visible signs of wear and tear, and replace them when necessary.

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.

M2



CAUTION!

The M2 is a 2-way active monitor employing two 12" LF drivers in an airflow optimized bass-reflex cabinet. It contains a 1.4" HF driver using a compact but extremely strong neodymium magnet assembly, mounted on a low distortion horn optimized for monitor applications.

The M2 cabinet is constructed from marine plywood and has an impact resistant paint finish. The front of the loudspeaker cabinet is fitted with a rigid metal grill backed with a replaceable acoustically transparent foam. Two sockets which accept the Z5048 Flying pin are located on both sides of the cabinet allowing quick and flexible rigging.

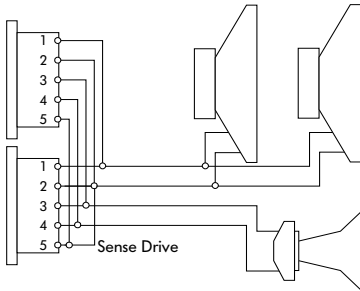
Only operate M2 cabinets with a d&b D12 amplifier in "2-Way Active" and M2 mode or an A1 mainframe fitted with an M2 controller module, otherwise there is a risk of damaging the loudspeaker components.

Connections

The M2 cabinet is fitted with two EP5 connectors (male/female). All pins are wired in parallel and uses the pin assignments 1/2/3/4 and 5 (Pin 5: SenseDrive - D12 only and in conjunction with 5-wire cables).

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

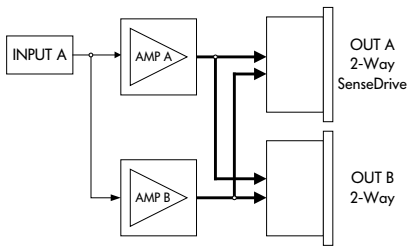
The M2 can be supplied with two CACOM connectors as an option to drive the M2 cabinet with the d&b A1 mainframe.



Connector wiring

	LF+	LF-	HF+	HF-	SenseDrive LF
EP5	1	2	3	4	5

EP5 pin assignments



**D12 Input/Output routing
2-Way Active mode**

IMPORTANT!

Operation with D12

Selecting "2-Way Active" and M2 mode enables up to two M2 cabinets to be driven actively by the D12 amplifier. The input signal is fed to INPUT A, while the input signal is routed (linked) to INPUT B internally.

To apply SenseDrive for the LF driver of both cabinets they should be linked together locally and connected to the output A connector of the D12 amplifier.

Controller settings

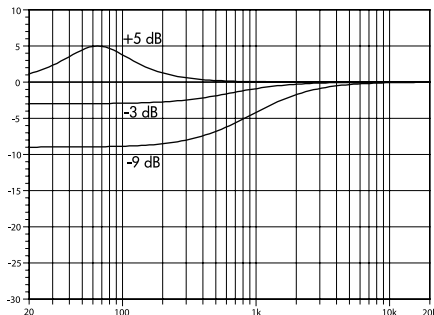
For acoustic adjustment the settings CUT and CPL can be selected.

CUT

Set to CUT, a high pass filter with a 110 Hz cut off frequency is inserted in the controller signal path. The M2 is now configured for use with d&b active subwoofers.

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 M2 cabinet is 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, or a positive CPL value which creates an adjustable low frequency boost around 65 Hz (0 to +5 dB).



Frequency response of CPL circuit

The following CPL settings correspond to the M2 controller settings of the A1 and are described in the following section "Operation with A1 - LFC level control":

0 dB = Floor, +3 dB = Free, -3 dB = Pair

Operation with A1

Two M2 cabinets can be driven by a single A1 mainframe fitted with an M2 controller module.

CUT switch

The CUT setting is available. The characteristics of the CUT setting is explained under the previous section "Operation with D12 - Controller settings".

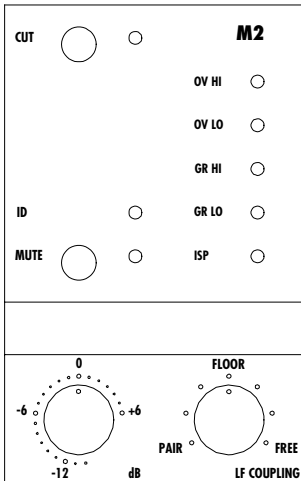
LFC level control

The detented LFC control (Low Frequency Coupling) adjusts the systems low and low/mid response for the different operating environments of the M2 cabinet.

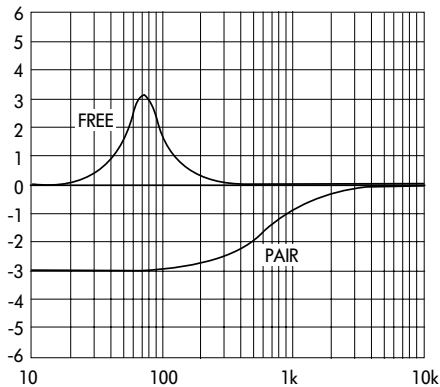
The **FLOOR** position is the standard setting for a single M2, used as a floor monitor.

Turning the control to the **PAIR** position, the low and lower/mid frequency range is further reduced (Corner frequency about 600 Hz). The maximum left position fully compensates the different coupling behaviour of the low and high frequencies when two cabinets are used in a paired monitor application.

Turning towards **FREE** increases the systems low end for operation without floor coupling (e.g. flown).



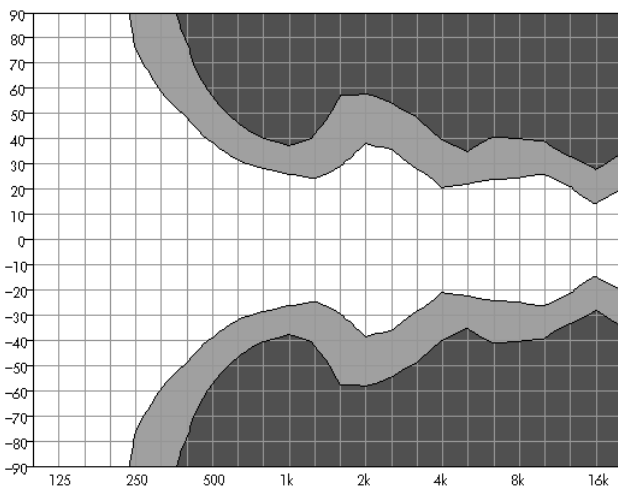
Controls on M2 controller module



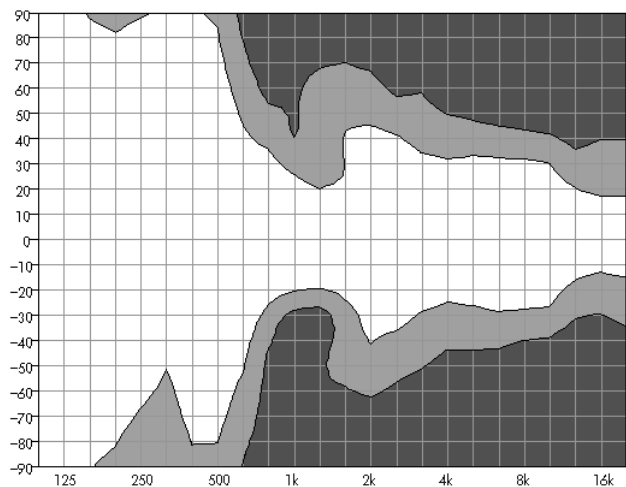
Frequency response LFC setting (min. and max.)

Dispersion characteristics

The diagrams below show dispersion angle vs frequency plotted using lines of equal sound pressure (isobars) at -6 dB and -12 dB. The nominal 45° horizontal dispersion angle is maintained from 800 Hz - 10 kHz.



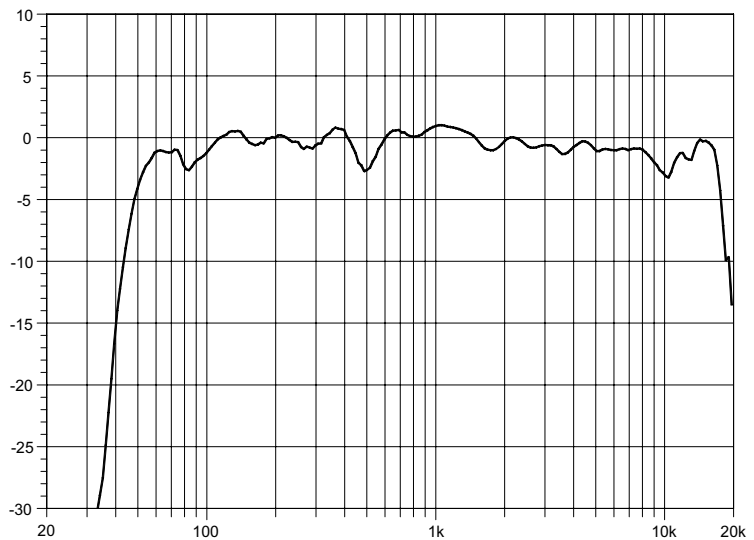
M2 isobar diagram horizontal



M2 isobar diagram vertical

Frequency response

The diagram below shows the frequency response of the M2 cabinet in floor monitor position, measured at a height of 1.7m (5.6 ft) (listening position in monitor operation) on axis:



M2 frequency response, monitor operation

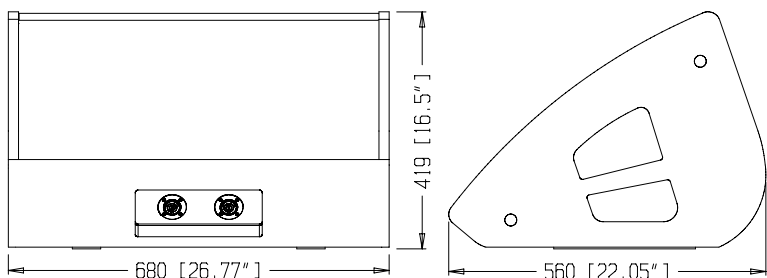
Technical specifications

M2 system data

Frequency response (-5 dB, free field) 56 Hz - 17 kHz
 Frequency response (-5 dB, floor coupling) 50 Hz - 17 kHz
 Max. sound pressure level (1 m, free field) with D12 or A1 143 dB
 (SPLmax peak, pink noise test signal with crest factor of 4)
 Input level (100 dB SPL / 1 m) -26 dBu
 Polarity to controller INPUT (XLR pin 2: + / 3: -) LF: - / HF: -

M2 loudspeaker

Nominal impedance LOW/HIGH 4 / 8 ohms
 Power handling capacity LOW (RMS / peak 10 ms) 500 / 2000 W
 Power handling capacity HIGH (RMS / peak 10 ms) 50 / 200 W
 Nominal dispersion angle (hor. x vert.) 45° x 60°
 Connections 2 x EP5
 Pin assignments 1: LF+/2: LF-/3: HF+/4: HF-/5: SenseDrive
 optional 2 x CACOM
 Pin assignments printed on the A1 controller module rear panel
 Weight 38 kg (83 lb)



M2 cabinet dimensions in mm [inch]

EU declaration of conformity (CE symbol)



EU conformity of loudspeakers

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

- **M2 Z0061**

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**