

Q7

Data sheet

Safety precautions

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.

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.

WARNING!

CAUTION!

General Information

Q7 Data sheet

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The information presented in this document is, to the best of our knowledge, correct. We will however not be held responsible for the consequences of any errors or omissions.

Technical specifications, weights and dimensions should always be confirmed with d&b audiotechnik AG prior to inclusion in any additional documentation.

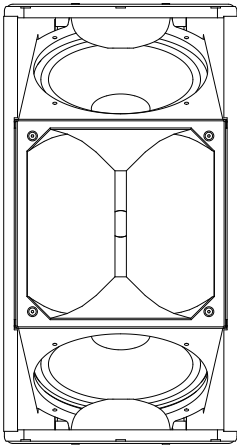
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Q7



The Q7 is a 75° x 40° passive two-way loudspeaker. It houses 2 x 10" LF drivers and a 1.3" HF compression driver with a rotatable CD horn and a passive crossover network. Its frequency response extends from 60 Hz to above 17 kHz. The two 10" neodymium LF drivers are positioned in a dipolar arrangement providing exceptional vertical dispersion control even at lower frequencies.

It can be used as a stand alone system or in various combinations with other Q-Series cabinets. In its standard orientation it serves as a full range system that can be used with a swivel bracket, flying adapter or stacked.

With the horn rotated the Q7 can also be used horizontally in applications where space is limited or in columns with Q1s and Q-SUBs.

Q7 cabinets can be combined with the Q-SUB subwoofer system either ground stacked, with a high stand and swivel bracket or as a flown array system using the Q-Series rigging accessories.

The Q7 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, covered with a replaceable acoustically transparent foam. The cabinet incorporates a pair of handles.

The Q7 cabinet is fitted with four types of rigging device:

- Eight sockets in the front grill and rear edge bar, that accept the Z5153 Locking pin 8 mm, to connect the array links.
- A quick lock adapter plate on one side of the cabinet that accepts the Z5150 Q Swivel bracket or the Z5156 Q Flying adapter.
- Five sockets that accept the Z5048 M2 Flying pin 10 mm for supporting single cabinets and for the aiming of arrays.
- Four M10 threaded inserts to accept the Z5020 Flying adapter 02, Z5025 Flying adapter 03 or Z5043 MAX Horizontal bracket.

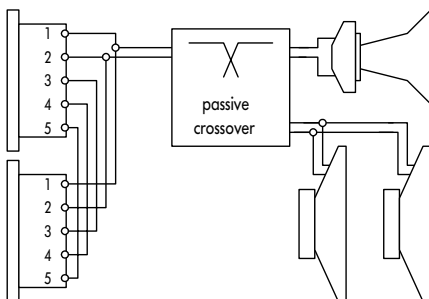
Only operate Q7 loudspeakers with a d&b amplifier configured for the Q7 otherwise there is a risk of damage to the loudspeaker components.

CAUTION!

Connections

The Q7 cabinet is fitted with a pair of EP5 connectors. All five pins of both connectors are wired in parallel. The Q7 uses the pin assignments 1/2. Pins 3/4 and 5 are designated to Q-SUB active subwoofers, where pin 5 is used for SenseDrive (only available when using a D12 amplifier and 5-wire cabling). Using the male connector as the input, the female connector allows for direct connection to additional loudspeakers.

The Q7 can be supplied with NL4 output connectors as an option. Pin equivalents of EP5 and NL4 connectors are listed in the table on the left.



Connector wiring

| | | | | | |
|-----|----|----|----|----|------|
| EP5 | 1 | 2 | 3 | 4 | 5 |
| NL4 | 1+ | 1- | 2+ | 2- | n.c. |

EP5 and NL4 pin assignments

Operation with D12

Selecting Q7 mode in the D12 enables up to three Q7 loudspeakers to be driven by the respective channel. In applications with high continuous levels or high ambient temperatures for thermal reasons only two loudspeakers per channel (4 ohms) should be connected.

Controller settings

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

CUT circuit

Set to CUT, the Q7 low frequency level is reduced. The Q7 is now configured for use with the Q-SUB or d&b C-Series subwoofers.

HFA circuit

In HFA mode (High Frequency Attenuation), the HF response of the Q7 system 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.

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 Q7 cabinets 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, or a positive CPL value which creates an adjustable low frequency boost around 65 Hz (0 to +5 dB).

Operation with E-PAC

Selecting Q7 mode (firmware V4.00 or later) enables the E-PAC to drive one Q7 loudspeaker. LO IMP mode configures the E-PAC to drive a maximum of two Q7 loudspeakers with a 6 dB reduction in input level to the loudspeakers.

For acoustic adjustment the functions CUT and CPL can be selected. The E-PAC CPL circuit creates a 3 dB attenuation corresponding with the -3 dB curve shown in the diagram opposite.

Arraying Q7 cabinets

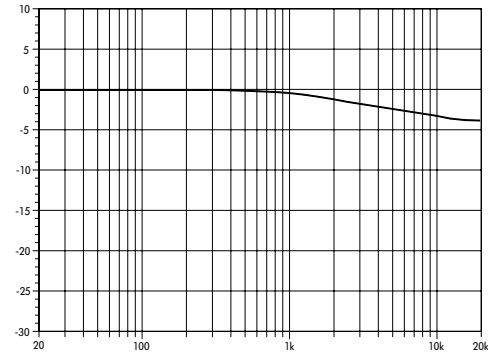
Horizontal array of Q7 cabinets

The horizontal angle between adjacent Q7 cabinets can be set to between 40° and 60°. The most even energy distribution is achieved with 50°.

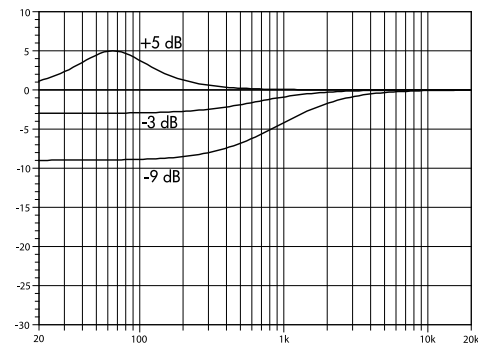
Vertical array of Q7 cabinets

The vertical angle between adjacent Q7 cabinets can be set to between 20° and 40°. The most even energy distribution is achieved with 35°. Smaller angles between the cabinets will give a smaller coverage area but will produce higher sound pressure on the centre axis of the array.

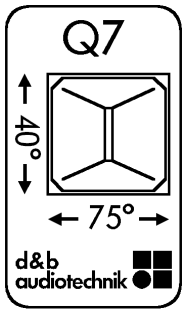
IMPORTANT!



Frequency response correction of HFA circuit



Frequency response correction of CPL circuit



Q7 horn dispersion label

WARNING!



Q7 used in line array columns with Q1s and Q-SUBs

The Q7 with the horn rotated can be positioned at the bottom of a Q1 line array column to vertically extend the near field coverage, if required. The maximum spaly angle is 14°.

Altering the HF horn dispersion

The Q7 HF horn has a square flange allowing it to rotate through 90°. It can easily be accessed through an aperture in the front grill. A label on the horn flare helps to easily identify the orientation of the horn.

To rotate the horn undo the four countersunk Allen screws (M5 x 22) that hold the horn in place using a 3 mm Allen key. The horn can then be rotated through 90° and refastened using four new TufLock countersunk Allen screws (Torque setting 2-3 Nm).

It is essential that all four countersunk screws are not only replaced but properly tightened. Otherwise there is the possibility that the horn and driver could fall out of the front of the cabinet.

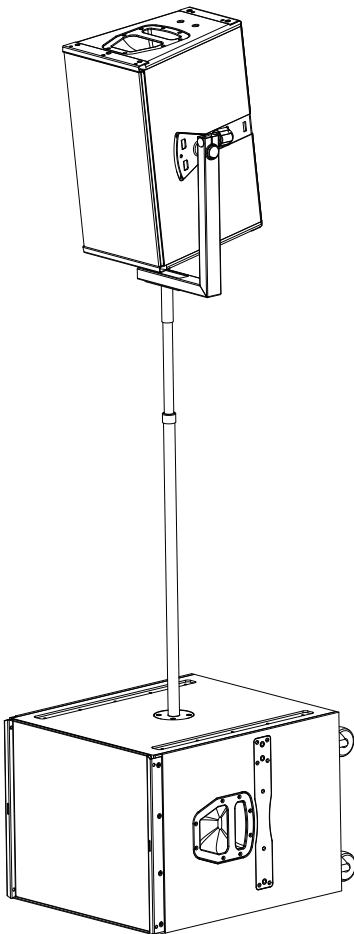
Before setting up Q7 loudspeakers always ensure that the horn is mounted correctly.

Q Swivel bracket

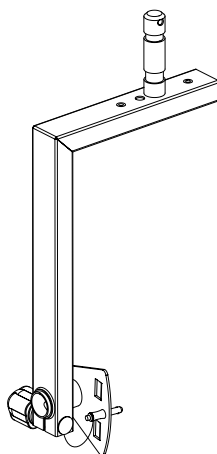
The Z5150 Q Swivel bracket is connected to the Q quick lock adapter plate and secured with the pin that is attached to it by a steel wire. It can be used with a Loudspeaker stand adapter or a TV spigot.

Flying Q7 cabinets with the M2 Flying pin

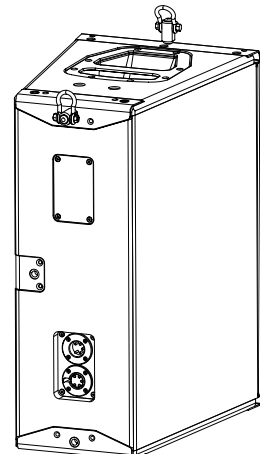
Q7 cabinets can be suspended using a pair of Z5048 M2 Flying pins 10 mm. They can be inserted on the top and bottom of the front grill. There is also an M2 Flying pin socket located on the top and bottom panels, whilst a third is positioned in the centre of the rear panel that can be used to connect a rope or steel wire for aiming the array.



Q7 and Q-SUB



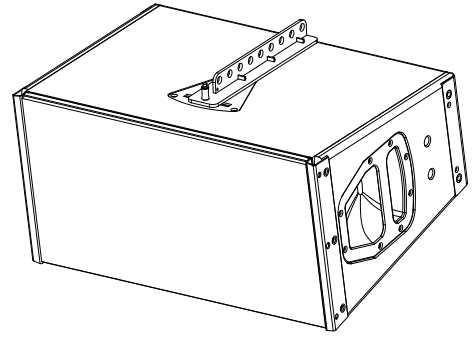
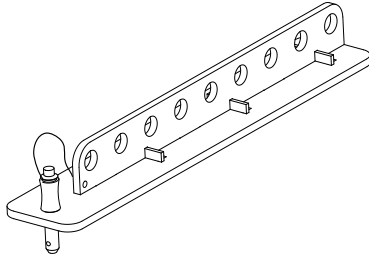
Q Swivel bracket with TV spigot



Q7 with M2 Flying pins

Q Flying adapter

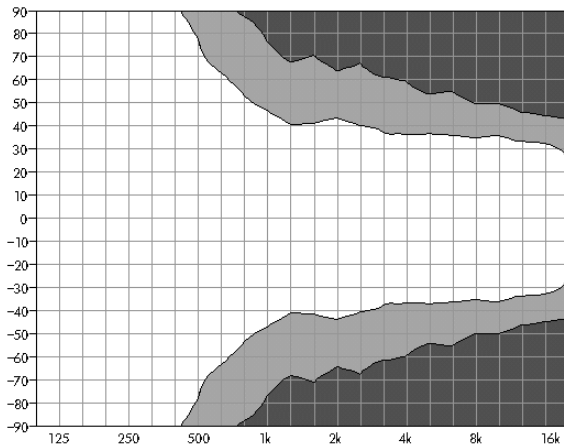
The Q7 loudspeaker can be suspended using the Z5156 Q Flying adapter. It is connected to the quick lock adapter plate and secured with the pin that is attached to it by a steel wire.



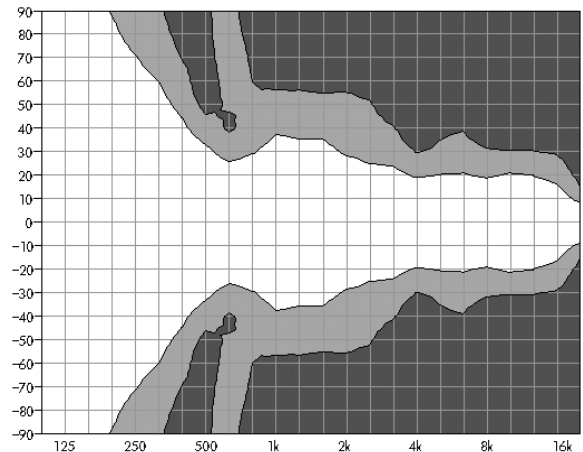
Q7 with Z5156 Q Flying adapter

Dispersion characteristics

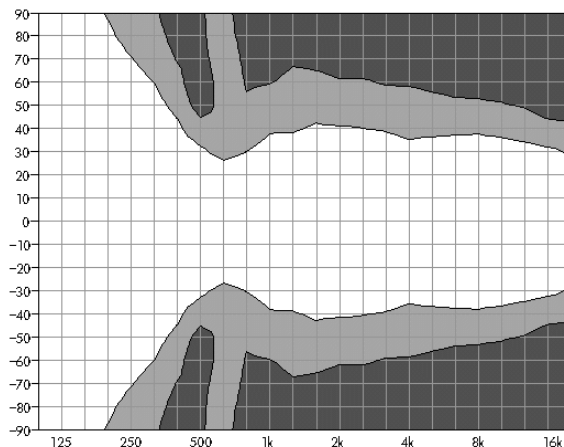
The graphs below show dispersion angle over frequency of a single Q7 cabinet plotted using lines of equal sound pressure (isobars) at -6 dB and -12 dB. The nominal horizontal dispersion of 75° is maintained above 400 Hz.



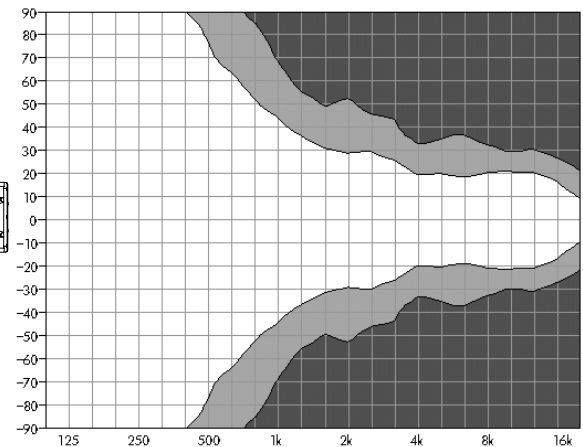
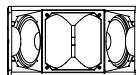
Isobar diagram Q7 horizontal



Isobar diagram Q7 vertical



**Isobar diagram Q7 horizontal,
rotated set up**



**Isobar diagram Q7 vertical,
rotated set up**

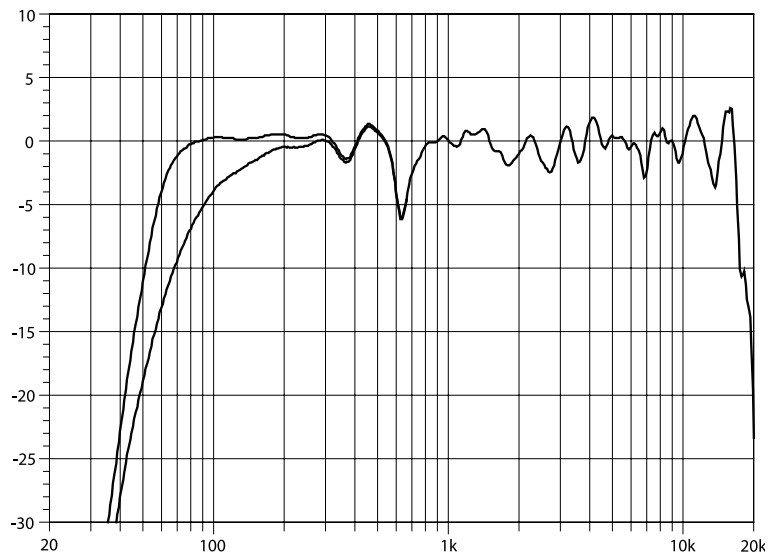
Technical specifications

Q7 system data

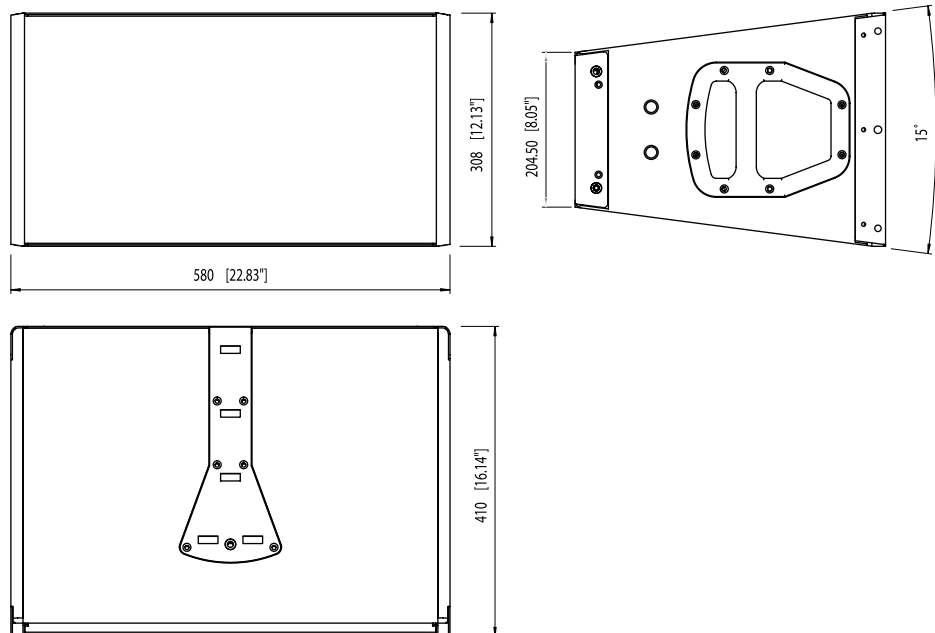
Frequency response (-5 dB standard).....60 Hz ... 17 kHz
 Frequency response (-5 dB CUT mode)..... 100 Hz ... 17 kHz
 Max. sound pressure (single cabinet, 1 m, free field) with D12 138 dB
 Max. sound pressure (single cabinet, 1 m, free field) with E-PAC 134 dB
 (SPLmax peak, pink noise test signal with crest factor of 4)
 Polarity to controller INPUT (XLR pin 2: +/3: -).....LF: +/HF: -

Q7 loudspeaker

Nominal impedance..... 8 ohms
 Power handling capacity (RMS / peak 10 ms)..... 400/1600 W
 Nominal dispersion angle (hor. x vert.).....75° x 40°
 Connections 2 x EP5
 (optional 2 x NL4)
 Pin assignments EP5: 1/2
 NL4: 1+/1-
 Weight 22 kg (49 lb)



Q7 frequency response, standard and CUT settings



Q7 cabinet dimensions in mm [inch]

