

The J-Series



The J-Series

The **d&b J-Series** continues the established d&b audiotechnik approach to the design and manufacture of loudspeaker systems. It is intended for use in large-scale sound reinforcement applications, providing incredibly quick and easily configurable array solutions even in the most arduous situations. Control of dispersion behaviour is a particular fixation at d&b, as is keeping the size and weight of systems to an absolute minimum; these are both areas in which the J-Series excels. It also embodies the d&b holistic approach to sound reinforcement solutions: integrating loudspeakers, electronics, mechanical deployment assemblies, remote control functions, transport solutions and setup design tools for precise calculation of array performance. The J-Series carries on the "d&b specific" combination of a neutral, intelligible sound character that is clear and transparent even at the highest sound pressure levels providing the engineer with an efficient, effortless tool and a neutral platform. The crystal clear and detailed audio performance with an extraordinarily smooth and even frequency response over distance, high dynamic bandwidth, extreme power and headroom capabilities makes the J-Series the ultimate choice for the far reaching reinforcement of any sound genre. All the components needed to suspend the loudspeakers within the bespoke three point J-Series flying system are integrated into the cabinets ensuring speedy deployment in all the intended applications, whether ground supported or flown. The use of neodymium magnets in the driver assemblies increases the ratio of weight against output power to significantly higher levels. The ArrayCalc calculator predicts the physical and acoustical performance of arrays; enabling simple and accurate system planning and negates trial and error in highly pressured onsite situations.

The 3-way **J8** and **J12** loudspeakers are acoustically matched and constructed to be mechanically compatible sharing the same vertical directivity, size, footprint, weight, rigging and driver complement. The coherent vertical wave front that is produced enables the construction of vertical arrays starting from a minimum of four up to a maximum of twenty-four cabinets with a fully user and venue definable vertical profile. Both loudspeakers use an active crossover between the low and mid and a passive crossover between the mid and high frequencies. J8 and J12 are completely symmetrical horizontally with two 12" neodymium low frequency drivers placed to the outsides in a dipolar arrangement. Their hornloaded coaxial mid and high frequency section is mounted in the centre of the loudspeakers. The mid frequency horn uses a 10" driver, while the high frequency section consists of two 1.4" exit HF compression drivers with 3" voicecoils mounted to a dedicated wave-shaping device.

The J8's 80° horizontal constant directivity dispersion pattern,

maintained down to 250 Hz, and its high output capability can cover a distance range of over 100 m (330 ft) depending on the climatic conditions.

The J12 has a wider horizontal dispersion pattern of 120° maintained down to 250 Hz, which is particularly useful for short and medium throw applications up to approximately 40 m (130 ft). Using a combination of J8 and J12 cabinets enables the user to create a venue specific dispersion and energy pattern.

The **J-SUB** shares the same width as the J8 and J12 loudspeakers and is equipped with compatible flying fittings. The bass-reflex design uses three 18" high excursion drivers, one of which radiates to the rear to produce cardioid or hypercardioid subwoofer performance both in flown and ground stacked configurations. It may be flown as a separate column or integrated at the top of a J-Series array. The **J-INFRA** is a cardioid infra subwoofer used to extend the bandwidth of a J-Series system down to 27 Hz as well as increasing its headroom. It is used in ground stacked configurations, has two bass-reflex chambers containing three 21" drivers, two facing forward in one chamber and one facing backwards. Both the J-SUB and J-INFRA can be deployed in conventional left and right ground stacked setups as well as in distributed bass-arrays to achieve an even venue specific coverage pattern.

All J-Series loudspeakers are finished with a PCP (Polyurea Cabinet Protection) coating that provides resistance for mobile systems to the adverse effects on cabinets in changing ambient outdoor conditions.

The d&b **D12** dual channel amplifier realizes the complete J-Series system. It utilizes an autosensing switch mode power supply, incorporates d&b loudspeaker specific configuration information, including the J-Series loudspeakers, and has analog and digital signal inputs and links. The device is specially designed and manufactured by d&b utilizing Digital Signal Processing and includes switchable functions for precisely tailoring system response for a wide variety of applications. A user definable 4-band parametric equalizer and a delay capability is provided in every amplifier channel to reduce the need for external processing devices. The D12 amplifier offers a 2-Way Active mode and a mixed TOP/SUB output configuration, output connector options as well as d&b SenseDrive.

The D12 also has a **d&b Remote network** interface enabling control and monitoring of a large number of system functions and extensive system integration capabilities. d&b Load monitoring and System check are also incorporated to remotely monitor loudspeaker driver status.

The J-Series



J8, J12 loudspeaker



J subwoofer



J-INFRA subwoofer



D12 amplifier

The D12 amplifier

D12 amplifier

The D12 is a dual channel power amplifier developed and manufactured by d&b utilizing Digital Signal Processing (DSP) to incorporate loudspeaker specific configuration information and functions. It's designed for use with d&b loudspeakers, has digital and analog signal inputs as well as link outputs, remote control and monitoring capabilities and a switch mode power supply. The level control incorporates a digital rotary encoder enabling selection of all operating modes in conjunction with a Liquid Crystal Display (LCD).

Loudspeaker specific configurations for current d&b loudspeakers and a linear mode is contained within it. The digital elements of the D12 are specified and constructed to achieve the best possible audio performance while maintaining a very low latency of 0.3 msec. The Digital Signal Processing is used to provide the loudspeaker specific configurations, sophisticated protection circuits modelling thermal and mechanical driver behaviour, and switch functions.

User definable equalization and delay functions are incorporated in each channel of the amplifier and can be used for applications such as front fills or under balcony delays without the need for external processors. The signal delay capability allows delay settings of up to 340 msec. (= 100 m/328 ft) to be applied independently to each channel as can the 4-band parametric equalizer, providing optional Boost/Cut or Notch filtering. A signal generator offering pink noise or sine wave program is also incorporated for test and alignment purposes. Every unit can be given a unique Device Name to simplify identification and a password protected LOCK function is also incorporated to prevent unauthorized setup changes.

The D12 amplifier also detects incoming Pilot signals at its input (Input monitoring) and can use Load monitoring and System check functions to determine the status of the loudspeaker impedance. d&b System check is designed to verify that the system performs within a predefined condition and can be used, for example, to

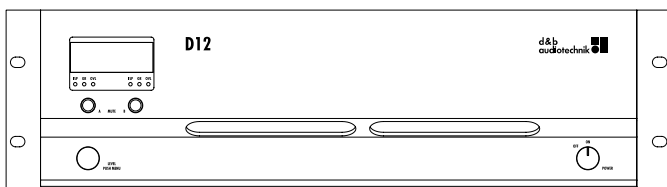
report the system condition after the show. d&b Load monitoring, on the other hand, enables automatic and continuous impedance monitoring and along with Input monitoring is designed for incorporation within applications specified to the requirements stated in the International Standard IEC 60849 'Sound Systems for Emergency Purposes'. The amplifier can determine the status of an LF or HF driver in systems with multiple elements, even if these are crossed over passively.

The D12 utilizes an autosensing switch mode power supply for mains voltages 115/230 V, 50 - 60 Hz (optional 100/200 V). Its power supply has over voltage protection and a temperature and signal controlled fan to cool the internal assemblies.

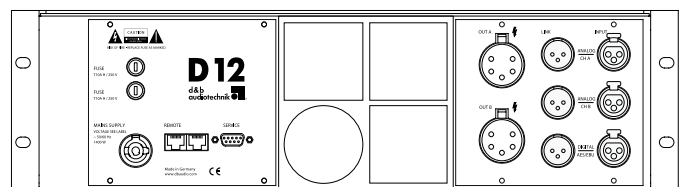
The 3 RU D12 is specifically designed to produce high power into low impedance loads, typically those between 4 and 16 ohms.

Due to differences in impedance response against frequency, the maximum number of cabinets driven by each D12 channel varies depending on the loudspeaker type. Apart from selectable output configurations for dual channel, mixed TOP/SUB and 2-Way Active mode, the D12 provides d&b SenseDrive for use with the LF drivers in d&b active loudspeakers and subwoofers.

The amplifier houses an I/O panel containing: analog signal inputs with link outputs for each channel, an AES/EBU digital input with a link output as well as loudspeaker outputs that are optionally either EP5, NL4 or NL8. The two RJ 45 REMOTE sockets at the rear of the D12 amplifier integrate it into the d&b Remote network via CAN-Bus, enabling remote control and/or monitoring. A SUB-D9 SERVICE interface is provided to enable future firmware updates containing new loudspeaker configurations or additional functions to be loaded to the unit.



D12 front view



D12 rear view

The D12 amplifier data

D12 Display

ISP, GR, OVL A/B.....LED indicators
Liquid Crystal Display (LCD).....Graphic display/120 x 32 Pixel

D12 Controls

POWER, MUTE/LEVEL.....Switch, rotary encoder
Function switches.....Loudspeaker specific circuits
4-band equalizer.....Optional PEQ/Notch
Delay setting.....0.3 - 340 msec. with 0.1 msec. detents
Configurations.....Current d&b loudspeakers and linear mode
Frequency generator.....Pink noise or Sine wave

D12 Connectors

INPUT/LINK ANALOG A/B.....3 pin XLR female/male¹
INPUT/LINK DIGITAL AES/EBU.....3 pin XLR female/male¹
Sampling rate.....48 kHz/96 kHz
OUT CHANNEL A/B.....Optional EP5/NL4/NL8
REMOTE.....2 x RJ 45 parallel
SERVICE.....SUB-D9 female

D12 Protection circuits

Mains inrush current limiter.....5 A RMS at 230 V
Loudspeaker switch on delay.....Approx. 2 sec.
Overvoltage protection.....Up to 400 VAC

D12 Data (linear setting with subsonic filter)

Rated output power (THD+N < 0.1%).....
.....2 x 750 W into 8 ohms, both channels are driven
.....2 x 1200 W into 4 ohms, both channels are driven
S/N ratio (unweighted, RMS).....>110 dB

D12 Digital Signal Processing

Sampling rate.....96 kHz/27 Bit ADC/24 Bit DAC
Basic delay/latency analog input.....0.3 msec.

D12 Power supply

Autosensing switch mode power supply for.....
.....115/230 V, 50 - 60 Hz
.....optional 100/200 V, 50 - 60 Hz
Mains connector.....PowerCon®²

D12 Remote network

Remote network.....CAN-Bus

D12 Dimensions, weight

Height x width x depth.....3 RU x 19" x 353 mm/13.9"
Weight.....13 kg/29 lb

¹ XLR pin assignment analog, inputs and links: 1 = GND, 2 = pos. signal, 3 = neg. signal
XLR pin assignment digital, input and link: 1 = GND, 2 = signal, 3 = signal

² PowerCon® is a registered trademark of the Neutrik AG, Liechtenstein

The d&b Remote network

d&b Remote network

The d&b Remote network enables central control and monitoring of a complete d&b loudspeaker system from anywhere in the network, be it from a PC in the control room, at the mix position, or on a wireless tablet PC in the auditorium.

This central access to all functions, controls and detailed system information unlocks the full potential of the d&b system approach. Extensive monitoring and diagnostics enables detailed examination of the system performance. Control can be undertaken on individual loudspeakers, on multiple groups of loudspeakers or formed into groups that address the complete system.

The flexibility and scalability of this approach, coupled with the inclusion of several types of interfaces, allow the d&b Remote network to be deployed to address the differing control and monitoring requirements in a broad variety of mobile and installed applications, regardless of their size.

In mobile applications, system engineers may use the remote network to verify and tune the system. System check and device diagnostics enable detailed monitoring as and when required, before, during, or after a show.

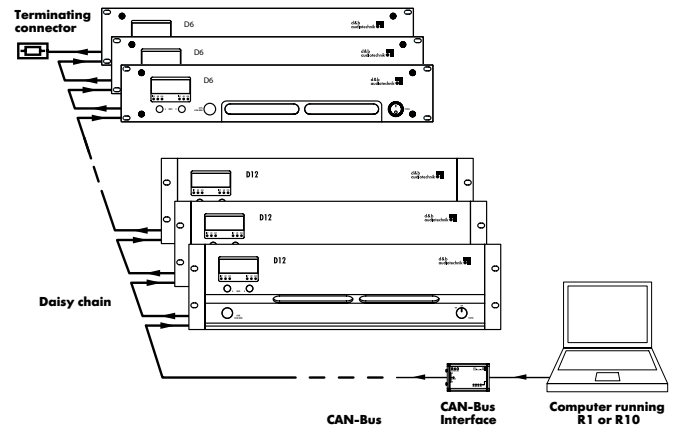
In installation projects system integrators can configure the remote network to offer access to different levels of control tailored to the operational demands. For example, simplified functionality for daily use and more complex functionality when multiple applications are required within one installation. Input and Load monitoring coupled with automatic error messages allow installation operators to ensure the optimum performance at all times.

d&b Remote interfaces

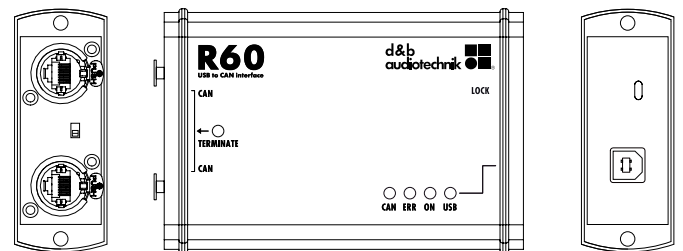
Every d&b amplifier is fitted with a Remote interface for the Controller Area Network (CAN) Bus. Each D6 and D12 has two REMOTE connectors (RJ 45) to enable the CAN-Bus signal to be daisy chained through them. A simple d&b Remote network application consists of a computer running R1 Remote control software, an R60 USB to CAN interface, CAT 5 shielded twisted pair cable with shielded RJ 45 connectors and d&b D6 or D12 amplifiers.

Up to five R60 USB to CAN interfaces can be operated with one computer running R1, while a maximum of 504 amplifiers can be incorporated into one application. The maximum bus cable length of a d&b Remote network is 600 metres, see the adjoining table for cable length examples. The R70 Ethernet to CAN interface can be used for applications over longer distances, in conjunction with a fibre optic network for example.

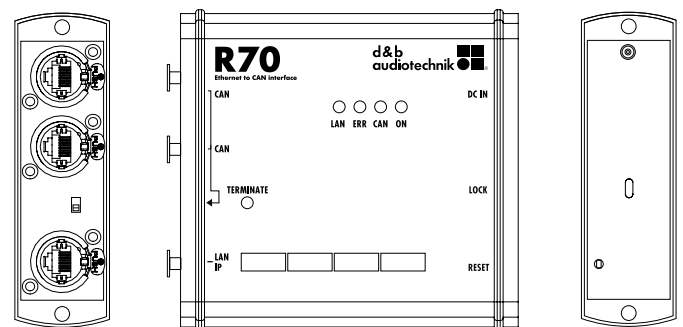
For further information about CAN-Bus cabling requirements and interfaces please refer to the d&b TI 312 d&b Remote network, which is available for download at www.dbaudio.com.



d&b Remote network



Z6118 R60 USB to CAN interface



Z6124 R70 Ethernet to CAN interface

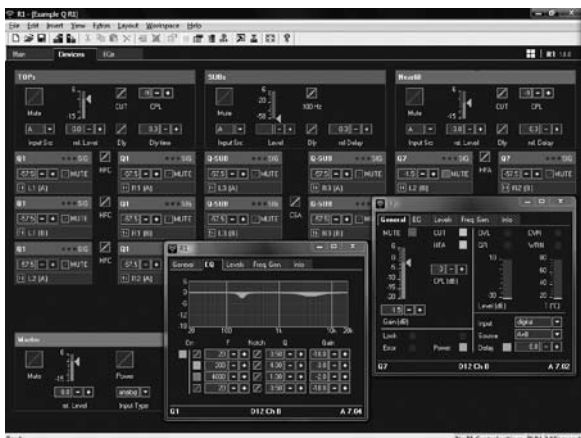
Cable cross section	Maximum bus cable length with numbers of amplifiers	
	32	100
0,25 mm ² (24 AWG)	180 m (600 ft)	140 m (460 ft)
0,75 mm ² (18 AWG)	500 m (1650 ft)	330 m (1100 ft)

Examples of bus cable length

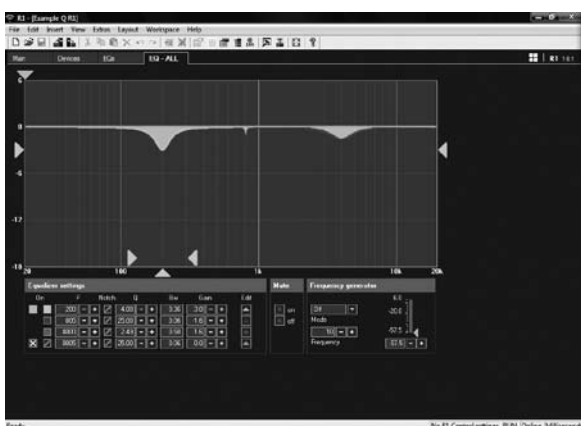
The d&b Remote software



R1 main page, groups and master controls



R1 device page, individual devices, details view and group controls



R1 equalizer page

R1 Remote control software

R1 Remote control software is a graphical drag and drop user interface enabling the construction of a screen based virtual control surface for d&b systems, using the d&b Remote network.

All major features, functions and controls available on the front panel of the D6 and D12 amplifiers may be remotely controlled and/or monitored using R1. The architecture of R1 allows control of each channel of the amplifier as a single entity and enables the creation of groups of loudspeakers in as little, or as much detail as required by the user. When grouped together, a button or fader can control the overall system level, zone level, equalization and delay, power ON/OFF, MUTE and loudspeaker function switches such as CUT/HFA/HFC or CPL.

R1 has extensive facilities for storing and recalling system settings allowing these to be repeated, as and when required. It is easy to adjust R1 project files for use with a different set of equipment at another location. Password protection is available to restrict access. R1 runs on PCs operating Microsoft Windows XP SP3/Vista SP1/7. A virtual machine enables R1 to run on the newer Intel² Mac³ in parallel to the Mac OS³ X, using the Windows driver for R60 USB to CAN interface.

For older, Power PC based Mac computers, Windows emulation needs to be used, together with the R60 driver for Mac/PPC. For R70 Ethernet to CAN, no driver is needed.

All the latest available drivers, R1 example files that can be used as templates and the TI 391 describing the effective use of R1 are available for download at www.dbaudio.com.

R10 Service software

R10 Service software enables the simultaneous amplifier firmware update of up to 63 amplifiers from a central location. Using R10, AmpPresets can be adjusted to the application requirements.

Integration with media control

For integration of d&b audiotechnik loudspeaker systems into media control applications, the R70 Ethernet to CAN interface is used. Media control modules (drivers) are available at www.dbaudio.com.

EN 60849 voice alarm applications

For remote control of voice alarm applications Programmable Logic Controllers (PLCs) can be integrated into the d&b Remote network.

¹ Microsoft and Windows XP/Vista/7 are either registered trademarks or trademarks of Microsoft Corporation in the United States and/or other countries

² Intel is a trademark of the Intel Corporation in the United States and other countries

³ Mac and Mac OS are trademarks of Apple Inc., registered in the United States and other countries

The J8 loudspeaker

J8 loudspeaker

The J8 loudspeaker is designed specifically for use in large-scale sound reinforcement applications. It is a 3-way design housing 2 x 12" LF drivers, one hornloaded 10" MF driver and two 1.4" exit HF compression drivers with 3" voicecoils mounted to a dedicated waveshaping device. The cylindrical wave segments produced couple coherently in the vertical plane. The symmetrical dipolar arrangement of the neodymium LF drivers around the centrally mounted coaxial MF and HF components allows a smooth overlap of the adjacent frequency bands in the crossover design. This results in an exceptional 80° horizontal constant directivity dispersion control nominally being maintained down to 250 Hz.

The mechanical and acoustical design enables flown vertical columns of up to twenty-four loudspeakers to be suspended using vertical splay angles between them of 0° to 7° with a 1° resolution. The J8 is acoustically and mechanically compatible with the J12 loudspeaker. It can be used in columns of purely J8 loudspeakers or combined with J12s and/or with J-SUBs.

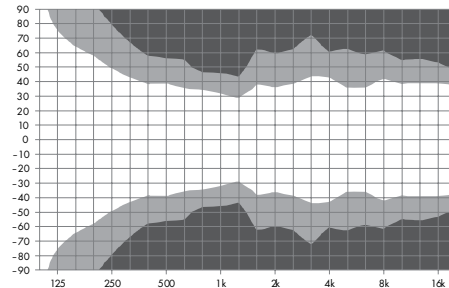
The J8 cabinet is constructed from marine plywood and has an impact and weather protected PCP (Polyurea Cabinet Protection) finish. The front of the loudspeaker cabinet is protected by a rigid metal grill, the side and rear panels incorporate four handles, and two EP5 or NL8 connectors wired in parallel are also mounted at the rear.

System data

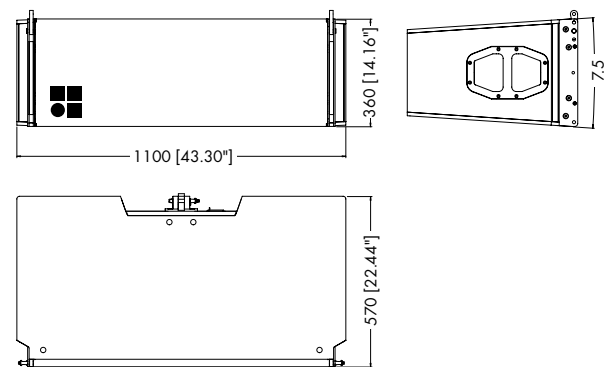
Frequency response (-5 dB standard).....48 Hz - 17 kHz
 Frequency response (-5 dB CUT mode).....85 Hz - 17 kHz
 Max. sound pressure (1 m, free field)¹.....145 dB

Loudspeaker data

Nominal impedance LF/MHF.....6/12 ohms
 Power handling capacity LF (RMS/peak 10 ms).....500/2000 W
 Power handling capacity MHF (RMS/peak 10 ms).....200/800 W
 Nominal dispersion angle (horizontal).....80°
 Splay angle settings.....0 - 7° (1° increment)
 Components.....2 x 12" driver/1 x 10" driver
2 x 1.4" exit compression driver
passive crossover network
 Connections.....2 x EP5, optional 2 x NL8
 Pin assignments.....
 EP5.....1: LF+ /2: LF- /3: MHF+ /4: MHF- /5: SenseDrive
 NL8.....1+: LF+ /1 -: LF- /4+: MHF+ /4 -: MHF- /3 -: SenseDrive
 Weight60 kg (132 lb)



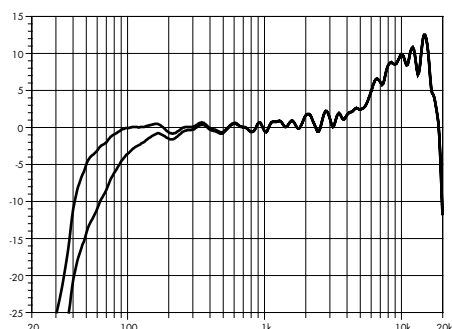
J8 horizontal dispersion characteristics²



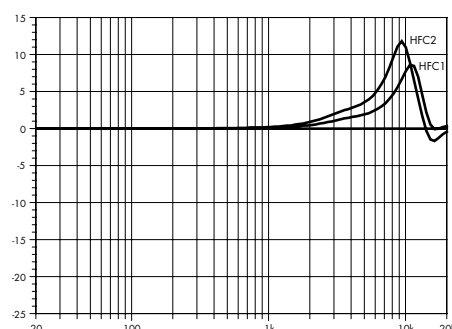
J8 cabinet dimensions in mm [inch]

¹ Broadband measurement, pink noise, crest factor 4, peak measurement, linear weighting
² Dispersion angle vs frequency plotted using lines of equal sound pressure (isobars) at -6 dB and -12 dB

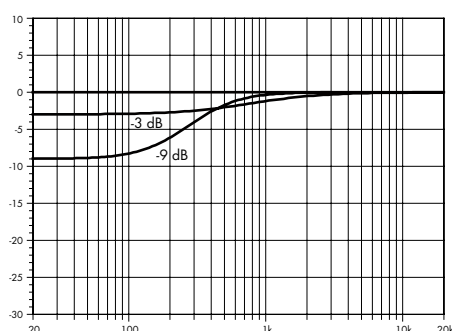
The D12 configuration



J8 frequency response, standard and CUT modes (single cabinet)



Frequency response correction of HFC circuit



Frequency response correction of CPL circuit

J8 with D12

Selecting 2-Way Active mode with the J8 configuration enables up to two J8 loudspeakers to be driven actively by the D12 dual channel amplifier. J8 loudspeakers are amplified by these two channels providing the active crossover between the low and mid/high sections, whilst the mid and high frequency drivers are crossed over passively within the cabinet.

The D12 amplifier has two setups for J8 cabinets, the Line and the Arc configuration, depending on the curvature of the array. The J8 Line configuration is selected when groups of four or more J8 cabinets are coupled to a straight long throw array section, where the splay angles to adjacent cabinets are 0° or 1°. Compared with the loudspeakers used in the curved array sections, those used in the straight array sections extend the acoustical near field, and therefore require a different tonal balance. By using the Line configuration, the mid/high range is reduced to compensate for this. The J8 Arc configuration is selected when J8 cabinets are used in curved array sections, where the splay angles to adjacent cabinets are 2° or more. Within a typical J-shaped array both amplifier configurations are used.

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

Set to CUT, the J8 low frequency level is reduced. The J8 is now configured for use with the d&b J subwoofer.

Selecting the HFC (High Frequency Compensation) circuit compensates for loss of high frequency energy due to absorption in air when loudspeakers are used to cover far field listening positions. The HFC circuit has two settings which should be used selectively, HFC1 for cabinets covering distances larger than 40 m (130 ft) and HFC2 for those covering distances larger than 80 m (260 ft). This can be used to achieve the correct sound balance between close and remote audience areas allowing all amplifiers driving the array to be fed from the same signal source. Thus the whole array performs with comparable headroom.

The CPL (Coupling) circuit compensates for coupling effects between the cabinets; these effects increase as the length of the array is extended. CPL begins gradually at 2 kHz, with the maximum attenuation below 100 Hz, providing a balanced frequency response when J8 cabinets are used in arrays of five or more. The function of the CPL circuit in the D12 amplifier can be set in dB attenuation values between -9 and 0.

The D12 incorporates d&b SenseDrive¹ for accurate control of LF driver membranes in J8 loudspeakers, resulting in an extremely precise bass performance, even at high levels. SenseDrive is only available using a D12 fitted with EP5 or NL8 connectors and appropriate 5-wire cabling.

¹ For further information please refer to the d&b TI340 SenseDrive, which is available for download at www.dbaudio.com.

The J12 loudspeaker

J12 loudspeaker

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The mechanical and acoustical design enables flown vertical columns of up to twenty-four loudspeakers to be suspended using vertical splay angles between them of 0° to 7° with a 1° resolution. The J12 is acoustically and mechanically compatible with the J8 loudspeaker. It can be used in columns of purely J12 loudspeakers or combined with J8s and/or with J-SUBs.

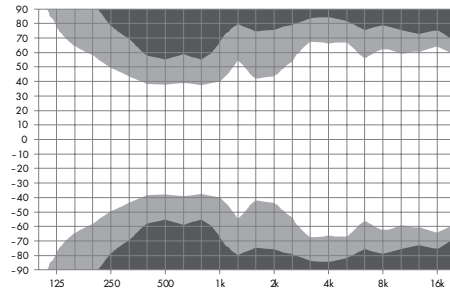
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System data

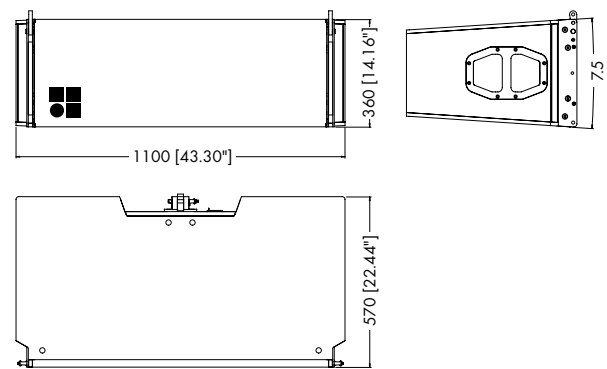
Frequency response (-5 dB standard).....48 Hz - 17 kHz
 Frequency response (-5 dB CUT mode).....85 Hz - 17 kHz
 Max. sound pressure (1 m, free field)¹.....143 dB

Loudspeaker data

Nominal impedance LF/MHF.....6/12 ohms
 Power handling capacity LF (RMS/peak 10 ms).....500/2000 W
 Power handling capacity MHF (RMS/peak 10 ms).....200/800 W
 Nominal dispersion angle (horizontal).....120°
 Splay angle settings.....0 - 7° (1° increment)
 Components.....2 x 12" driver / 1 x 10" driver
2 x 1.4" exit compression driver
passive crossover network
 Connections.....2 x EP5, optional 2 x NL8
 Pin assignments.....
 EP5.....1: LF+ / 2: LF- / 3: MHF+ / 4: MHF- / 5: SenseDrive
 NL8.....1+: LF+ / 1 -: LF- / 4+: MHF+ / 4 -: MHF- / 3 -: SenseDrive
 Weight.....60 kg (132 lb)



J12 horizontal dispersion characteristics

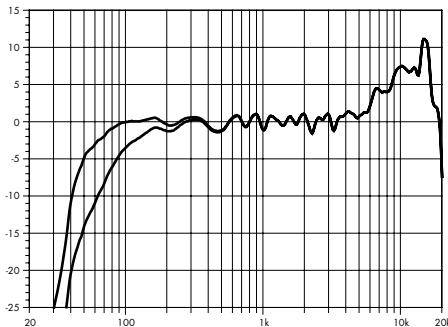


J12 cabinet dimensions in mm [inch]

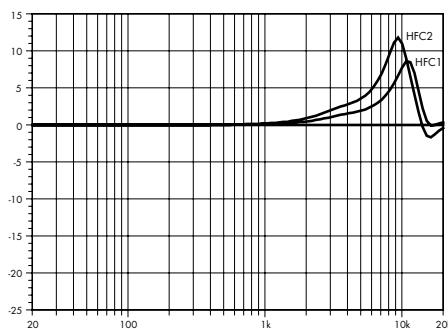
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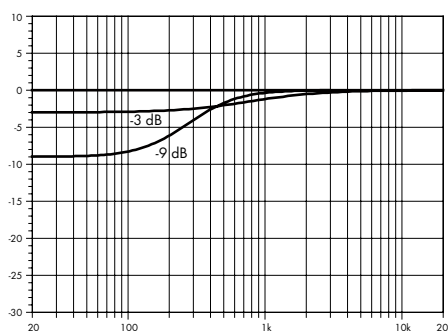
The D12 configuration



J12 frequency response, standard and CUT modes (single cabinet)



Frequency response correction of HFC circuit



Frequency response correction of CPL circuit

J12 with D12

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The CPL (Coupling) circuit compensates for coupling effects between the cabinets; these effects increase as the length of the array is extended. CPL begins gradually at 2 kHz, with the maximum attenuation below 100 Hz, providing a balanced frequency response when J12 cabinets are used in arrays of five or more. The function of the CPL circuit in the D12 amplifier can be set in dB attenuation values between -9 and 0 .

The D12 incorporates d&b SenseDrive¹ for accurate control of LF driver membranes in J12 loudspeakers, resulting in an extremely precise bass performance, even at high levels. SenseDrive is only available using a D12 fitted with EP5 or NL8 connectors and appropriate 5-wire cabling.

¹ For further information please refer to the d&b TI 340 SenseDrive, which is available for download at www.dbaudio.com.

The J subwoofer

J subwoofer

The J-SUB is the subwoofer for the J-Series. It is an actively driven 2-way bass-reflex design housing three long excursion neodymium 18" drivers, two drivers face to the front and one driver to the rear. The cardioid dispersion pattern resulting from this approach avoids unwanted energy behind the system that greatly reduces the reverberant field at low frequencies and provides the greatest accuracy of low frequency reproduction.

The J subwoofer can be used to supplement J8 and J12 loudspeakers in various combinations, ground stacked or flown, either integrated on top of a J8/J12 array or as a separate column. Cabinets are mechanically connected using the rigging links on both sides of the cabinet front, and with a central rigging link at the rear of the cabinet.

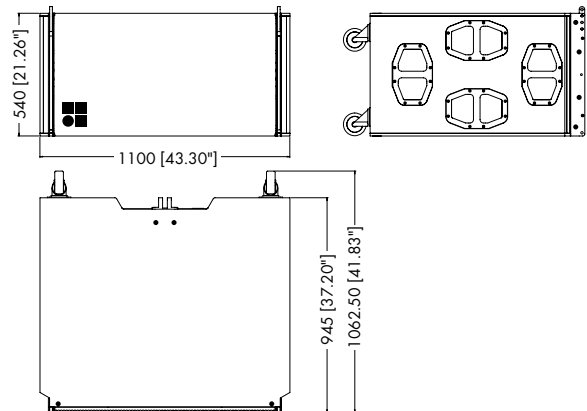
The J-SUB cabinet is constructed from marine plywood and has an impact and weather protected PCP (Polyurea Cabinet Protection) finish. The front and rear of the loudspeaker cabinet are protected by a rigid metal grill and the side panels incorporate eight handles. Four 100 mm wheels and one EP5 or NL8 connector are mounted at the rear.

System data

Frequency response (-5 dB standard)32 Hz -100 Hz
 Frequency response (-5 dB INFRA mode).....32 Hz - 70 Hz
 Max. sound pressure (1 m, free field)¹138 dB

Loudspeaker data

Nominal impedance front/rear.....4/8 ohms
 Power handling capacity (RMS/peak 10 ms).....
 Front.....800/3200 W
 Rear.....400/1600 W
 Components.....3 x 18" driver
 Connection.....1 x EP5, optional 1 x NL8
 Pin assignments.....
 EP5.....1: F+ /2: F- /3: R+ /4: R- /5: F SenseDrive²
 NL8.....1+: F+ /1 -: F- /4+: R+ /4 -: R- /3 -: F SenseDrive²
 Weight.....106 kg (234 lb)

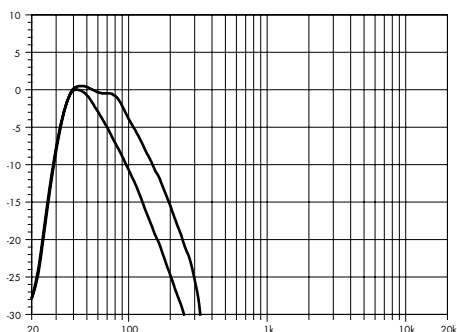


J-SUB cabinet dimensions in mm [inch]

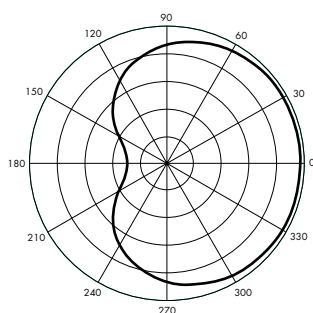
¹ SPL_{max}peak with music program

² F=Front, R=Rear

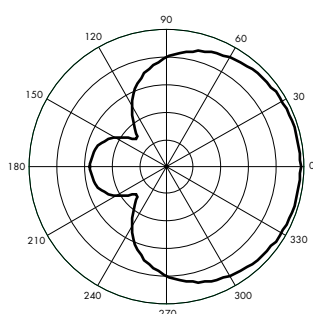
The D12 configuration



J-SUB frequency response, standard and INFRA modes



Standard cardioid polar pattern



Hypercardioid polar pattern

J-SUB with D12

Selecting 2-Way Active mode with the J-SUB configuration enables a single J subwoofer to be driven by the D12 dual channel amplifier. For acoustic adjustment the functions INFRA and HCD can be selected.

Selecting the INFRA mode restricts the J-SUB frequency response to a narrow 32 Hz - 70 Hz range. The J-SUB can now be used to supplement d&b J-Series systems operated in full range mode.

Depending on the application requirements, the dispersion pattern of the J-SUB cabinet can be modified electronically to achieve the best sound rejection where it is most effective. In standard cardioid mode the D12 J-SUB setup provides the maximum rejection directly behind the cabinet, whilst selecting HCD (hypercardioid) optimizes the tuning for a maximum rejection to the rear left and right sides, as shown in the polar plots opposite. The HCD mode is particularly useful for applications with subwoofers stacked on the left and right sides of the stage to provide the minimum low frequency energy onstage.

The D12 incorporates d&b SenseDrive¹ for accurate control of driver membranes in d&b subwoofers, resulting in an extremely precise bass performance, even at high levels. SenseDrive is only available using a D12 fitted with EP5 or NL8 connectors and appropriate 5-wire cabling.

¹ For further information please refer to the d&b TI 340 SenseDrive, which is available for download at www.dbaudio.com.

The J-Series rigging system

J-Series rigging system

The J-Series loudspeakers are mechanically connected using a BGV C1 compliant three-point suspension system. This consists of the J Flying frame from which the cabinets are suspended using rigging links and pins located on both sides of the front of the cabinets, and a central rear splay link. This J-Series rear splay link allows quick and easy selection of vertical angles between the loudspeakers and are permanently attached to the cabinets.

The J Flying frame is a welded steel frame designed to suspend a maximum of twenty-four J8/J12 cabinets, or fourteen J-SUB cabinets.

The J Load adapters are locked into the J Flying frame's central track. The array can be suspended from the two J Load adapters either directly, or the J Hoist connector chain may be inserted to allow space for a chain bag.

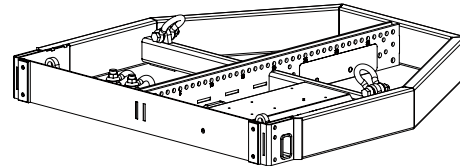
The Safety chainset should always be fitted to the J Flying frame using the integrated safety points and attached to an independent suspension point.

The J Flying frame also has a mounting plate that accepts industry standard inclinometers such as those from the Rieker Instrument Company Inc. or the SSE ProSight Inclinometer System.

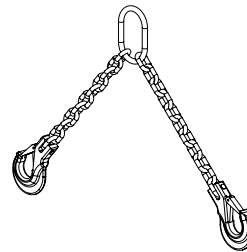
The Touring case is designed to accommodate one J Flying frame including Safety chainset and Hoist connector chain. When positioned on end the case holds the frame in the exact vertical position for the J8 or J12 Front links when face down on their Wheelboards. This keeps the J Flying frame in the perfect position for assembling and dismantling an array.

Safety approval

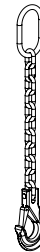
d&b loudspeakers and accessories are designed for set up and use within situations requiring compliance with the provisions and directives of BGV C1 Rule for the Prevention of Accidents.



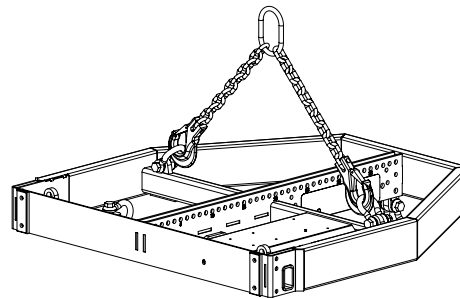
Z5300 J Flying frame



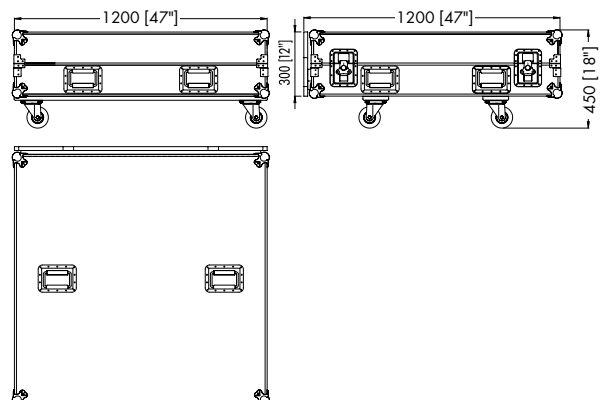
Z5303 J Safety chainset



Z5305 J Hoist connector chain

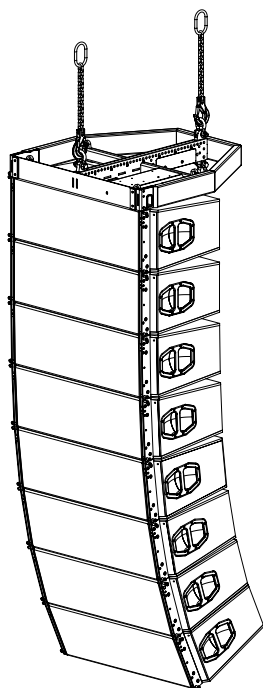


**Z5300 J Flying frame
supplied with
Z5303 J Safety chainset
2 x J Load adapter
2 x J Front links
2 x Locking pinsets 10 mm
1 x Locking pinset 11 mm**

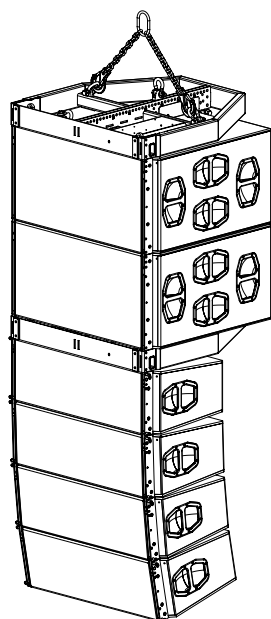


E7441 Touring case 1 x J Flying frame

The J-Series rigging examples



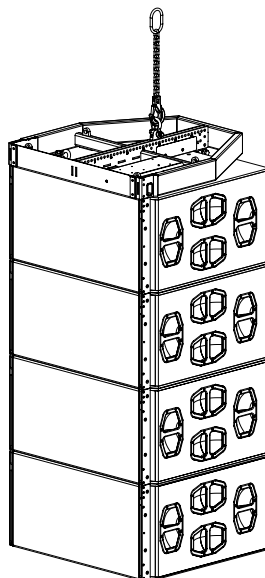
**J8/J12 array with
Z5300 J Flying frame
2 x Z5305 J Hoist connector chains**



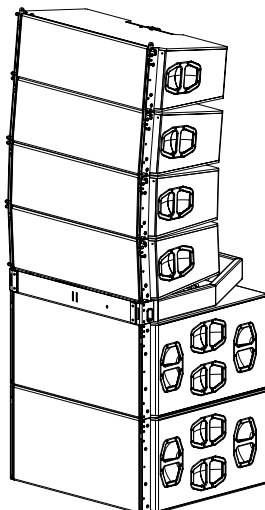
**J-Series mixed array with
2 x Z5300 J Flying frames
Z5303 J Safety chainset**

J-Series rigging examples

These rigging examples are for illustration only. In addition to the J Hoist connector chain the J Safety chainset should always be fitted to the J Flying frame and attached to an independent suspension point. For further information please refer to the d&b "TI 385 J, Q and T-Series system design, d&b ArrayCalc", which is available for download at www.dbaudio.com.



**J-SUB array with
Z5300 J Flying frame
Z5305 J Hoist connector chain**



**J-Series ground stack with
Z5300 J Flying frame**

The J-INFRA subwoofer

J-INFRA subwoofer

The J-INFRA is the INFRA subwoofer for the J-Series. It is an actively driven 2-way bass-reflex design and extends the frequency response of a J-Series system down to 27 Hz. It has two bass-reflex chambers containing three 21" drivers, two facing forward in one chamber that are driven from a channel of the D12 amplifier and one facing backwards driven by the other D12 channel. Through this driver setup its cardioid dispersion pattern avoids unwanted energy behind the system and greatly reduces the reverberant field at low frequencies providing highest accuracy in low frequency reproduction. The J subwoofer can only be used in ground stacked configurations in conventional left/right setups as well as arranged in an infra subwoofer array.

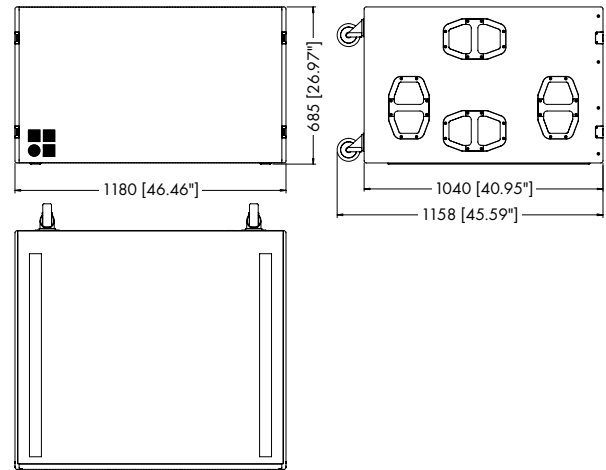
The J-INFRA cabinet is constructed from marine plywood and has an impact and weather protected PCP (Polyurea Cabinet Protection) finish. The front and rear of the loudspeaker cabinet are protected by a rigid metal grill and the side panels incorporate eight handles. Four 100 mm wheels and one EP5 or NL8 connector are mounted at the rear.

System data

Frequency response (-5 dB standard).....27 Hz - 60 Hz
 Frequency response (-5 dB 70 Hz mode).....27 Hz - 70 Hz
 Max. sound pressure (single cabinet, 1 m, free field)¹.....141 dB

Loudspeaker data

Nominal impedance front/rear.....3/6 ohms
 Power handling capacity front (RMS/peak 10 ms)....1200/4800 W
 Power handling capacity rear (RMS/peak 10 ms).....600/2400 W
 Components.....3 x 21" driver
 Connections.....1 x EP5, optional 1 x NL8
 Pin assignments.....
 EP5.....1: F+/2: F-/3: R+/4: R-/5: F SenseDrive²
 NL8.....1+: F+/1 -: F-/4+: R+/4 -: R-/3 -: F SenseDrive²
 Weight.....152 kg (335 lb)

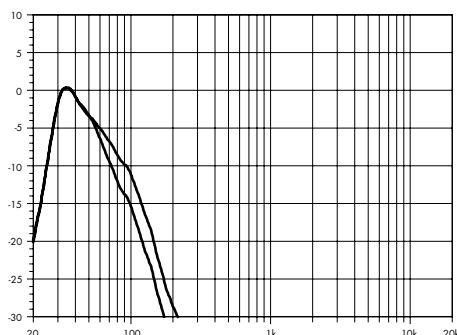


J-INFRA cabinet dimensions in mm [inch]

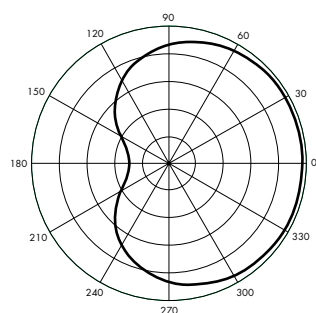
¹ SPL_{max} peak with music program

² F=Front, R=Rear

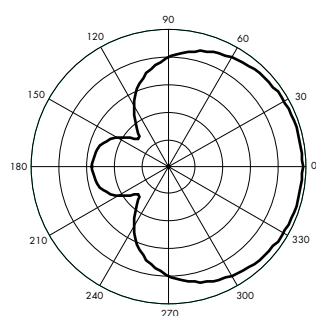
The D12 configuration



J-INFRA frequency response, standard and 70 Hz modes



Standard cardioid polar pattern



Hypercardioid polar pattern

J-INFRA with D12

Selecting 2-Way Active mode with the J-INFRA configuration enables a single J-INFRA subwoofer to be driven by the D12 dual channel amplifier.

For acoustic adjustment the functions 70 Hz and HCD can be selected.

Selecting the 70 Hz mode extends the J-INFRA frequency response to a 27 Hz - 70 Hz range. The J-INFRA can now be used to supplement d&b J-Series systems operated in full range mode.

Depending on the application requirements, the dispersion pattern of the J-INFRA cabinet can be modified electronically to achieve the best sound rejection where it is most effective. In standard cardioid mode the D12 J-INFRA setup provides the maximum rejection directly behind the cabinet, whilst selecting HCD (hypercardioid) optimizes the tuning for a maximum rejection to the rear left and right sides, as shown in the polar plots opposite. The HCD mode is particularly useful for applications with subwoofers stacked on the left and right sides of the stage to provide the minimum low frequency energy onstage.

The D12 incorporates d&b SenseDrive¹ for accurate control of driver membranes in d&b subwoofers, resulting in an extremely precise bass performance, even at high levels. SenseDrive is only available using a D12 fitted with EP5 or NL8 connectors and appropriate 5-wire cabling.

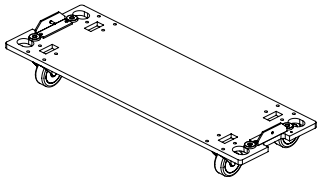
¹ For further information please refer to the d&b T1 340 SenseDrive, which is available for download at www.dbaudio.com.

The J-Series lids

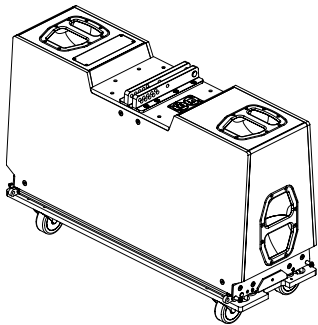
J-Series lids

The J Wheelboard consists of a wooden base board that has openings to access the loudspeaker Front links, and is fitted with four wheels, recessed grip moulds, rubber bumpers and securing plates. These plates secure the Wheelboard to the front of a J8 or J12 loudspeaker. The J Wheelboard protects the front of the loudspeaker and allows single cabinets to be transported easily. It is also an essential element in the array assembling and dismantling procedure, enabling complete J8 and J12 arrays to be linked on the ground before hoisting with the J Flying frame.

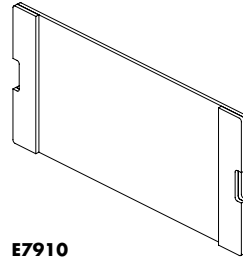
The J-SUB and J-INFRA Wooden lids consist of a wooden board, rubber bumpers and a set of securing plates. These plates secure the Wooden lids to either the J-SUB using one Locking pin, or to the J-INFRA using two pairs of catches. The Wooden lids protect the front of the subwoofer during transportation.



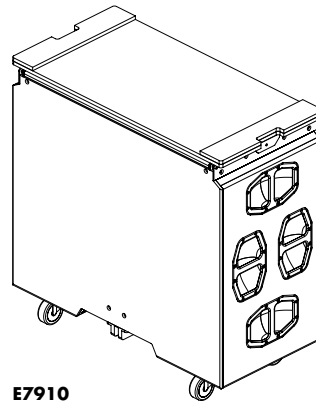
E7919 J Wheelboard



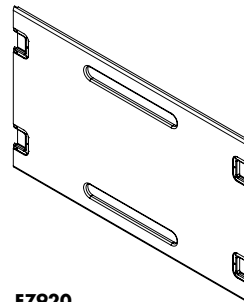
E7919 J Wheelboard with J8/12



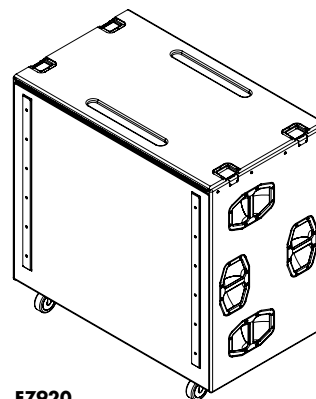
**E7910
J-SUB Wooden lid**



**E7910
J-SUB Wooden lid with J-SUB**

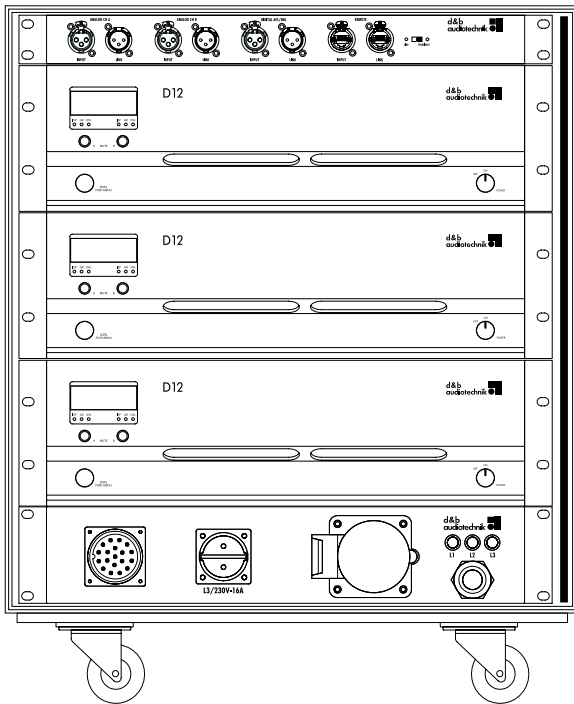


**E7920
J-INFRA Wooden lid**

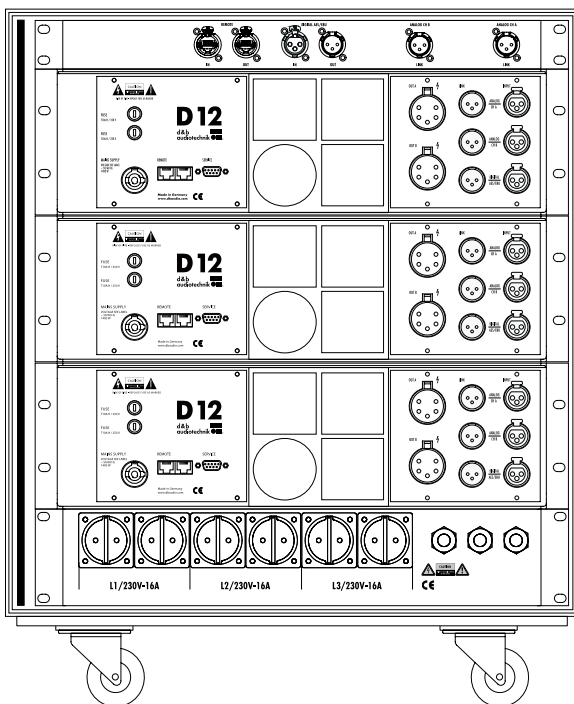


**E7920
J-INFRA Wooden lid with J-INFRA**

The Touring rack assembly and cables



Z5310 Touring rack assembly front view



Z5310 Touring rack assembly rear view

Touring rack assembly

The Z5310 Touring rack assembly is a bespoke D12 touring package targeted for the J-Series user. The rack assembly comprises the following:

The E7440 Touring rack 12 RU 19" with sliding doors has a 60 cm x 60 cm footprint and is designed to fit standard truck widths. It has four 100 mm wheels, six handles, a Perspex window and recessed stacking moulds. The shock mounted 19" internal steel frame accommodates three D12 amplifiers and the requisite connection panels as detailed below.

The Z5313 I/O patch panel 1 RU 19" includes ten XLRs for analog and digital In/Out, four Neutrik RJ 45¹ and a CAN-Bus termination switch.

The Z5312 Mains distribution panel 2 RU 19" includes a CEE 16 A, 400 V, 5 pin mains input with link out, seven 16 A, 250 V Schuko outlets and an LKS19 pin female Socapex compatible multipin connector with three internal EP5 male breakouts.

The Z5310 Touring rack assembly is supplied pre-wired with XLR cabling for channels A and B, AES/EBU and CAT5/CAN-Bus. All parts of the assembly are d&b audiotechnik factory tested including full functionality of audio, mains and loudspeaker connections. The Touring rack assembly does not include the three D12 amplifiers.

Cables

d&b strongly recommend the use of bespoke multicore cables as detailed below to provide the highest quality and performance. The 4 mm² (AWG12) loudspeaker conductors used in these cables are specially spun from 0.15 mm² strands to deliver high sonic quality, flexibility and durability.

The K3111 MC4SD and the K3115 MC12SD cables provide four and twelve loudspeaker conductors and two 0.5 mm² (AWG 24) and three 1.0 mm² (AWG 18) conductors respectively to carry the d&b SenseDrive signals. Both have relatively small outside diameters of 11.5 mm and 20 mm respectively and are also capable of safely supporting their own weight when flown.

The Z2297 MC4SD EP5 cable is supplied in a selection of standard lengths and is fitted with EP5 male to female connectors.

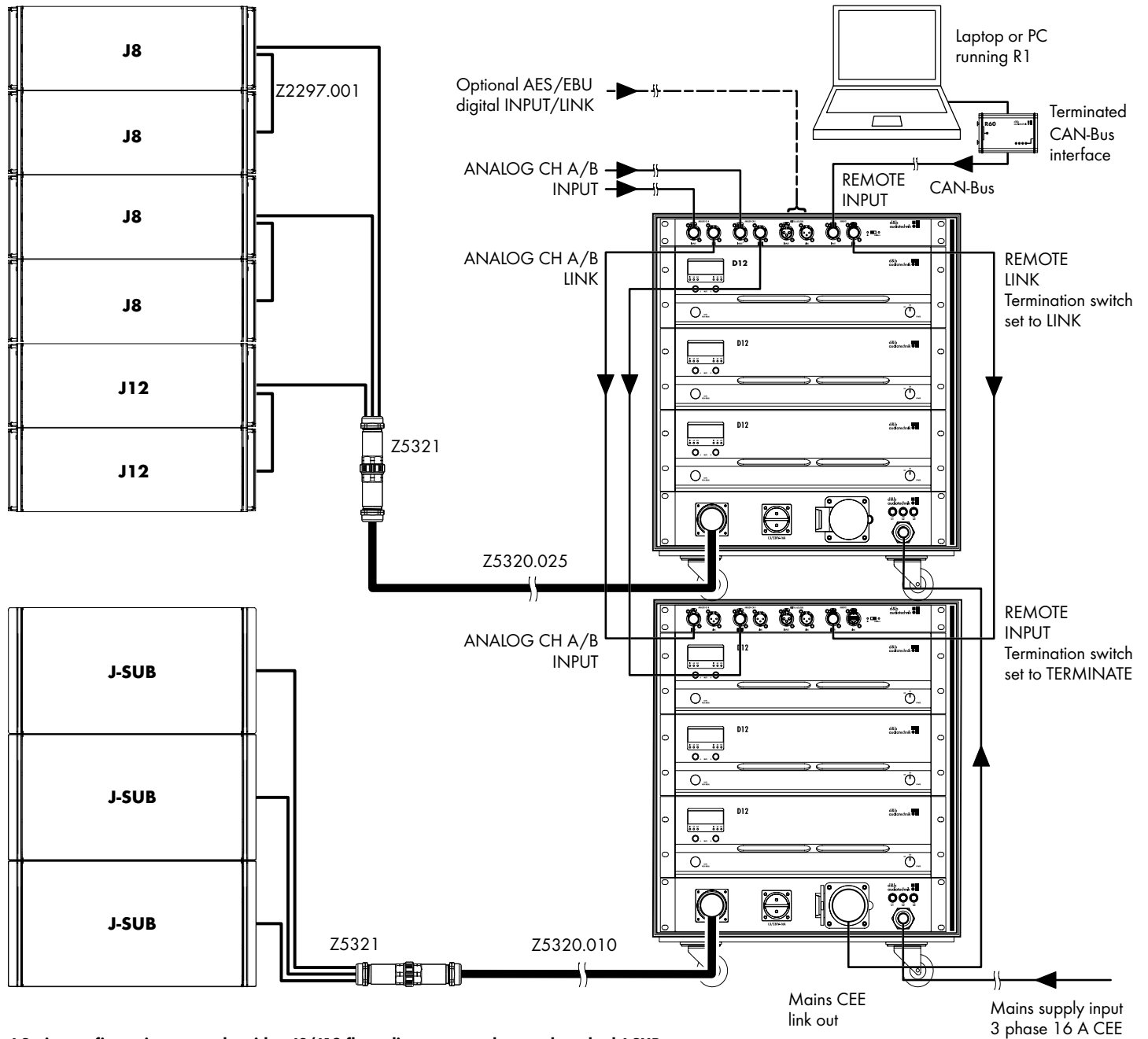
The Z5320 MC12SD LKS19 cable is supplied in a selection of standard lengths and is fitted with LKS19 pin male to female Socapex compatible multipin connectors.

The Z5321 LKS19 adapter M to 3 x EP5 F has one LKS19 pin male Socapex compatible multipin connector to three different length EP5 female breakouts for the connection of loudspeakers.

The Z5322 LKS19 adapter F to 3 x EP5 M has one LKS19 pin female Socapex compatible multipin connector to three EP5 male breakouts for connection to D12 amplifier outputs.

¹ Neutrik is a registered trademark of the Neutrik AG, Liechtenstein

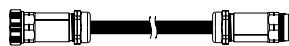
The J-Series configuration examples



J-Series configuration example with a J8/J12 flown line array and ground stacked J-SUBs



Z2297 MC4SD EP5 cable



Z5320 MC12SD LKS19 cable

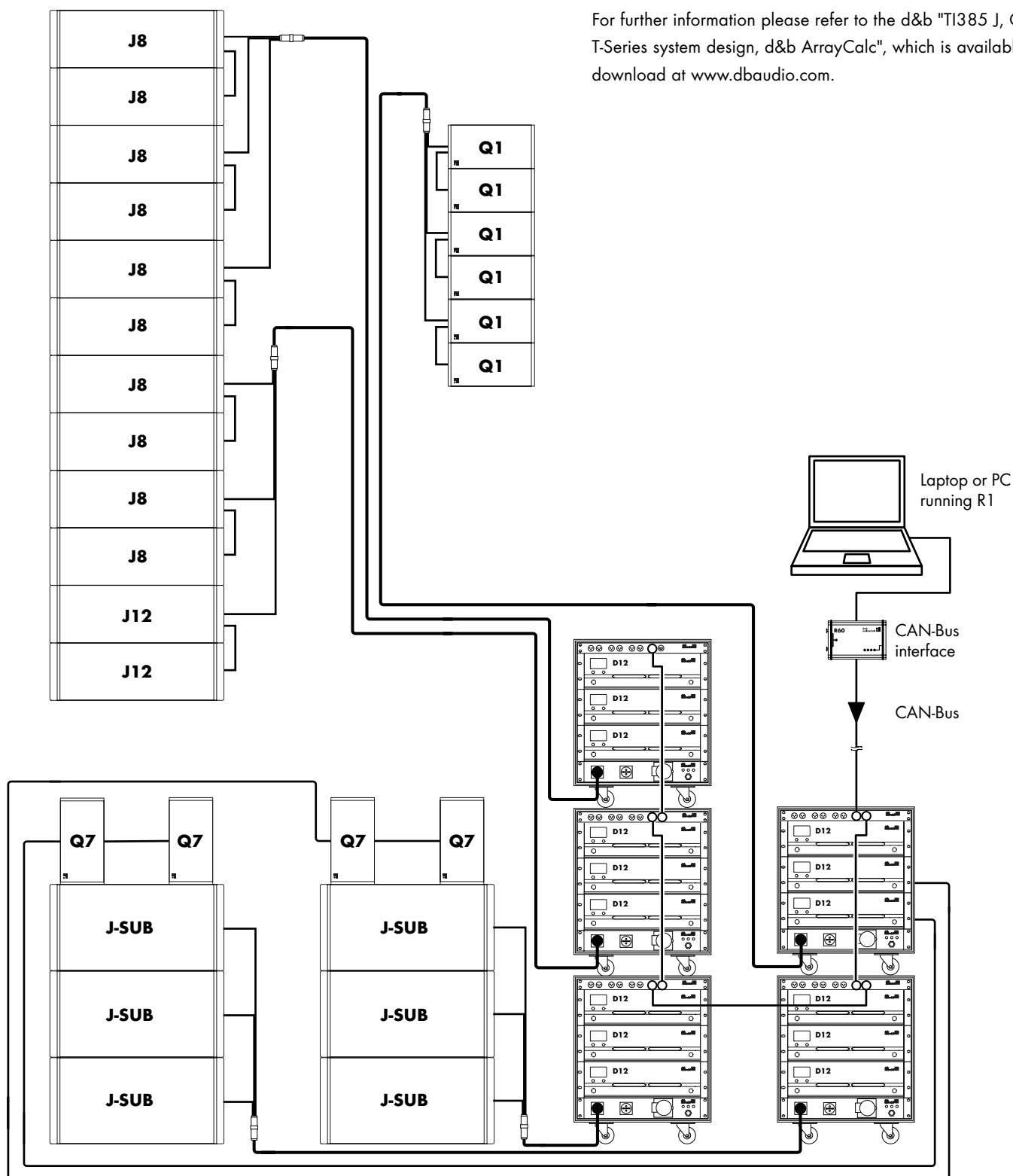


Z5321 LKS19 adapter M to 3 x EP5 F or
Z5323 LKS19 adapter M to 3 x NL8



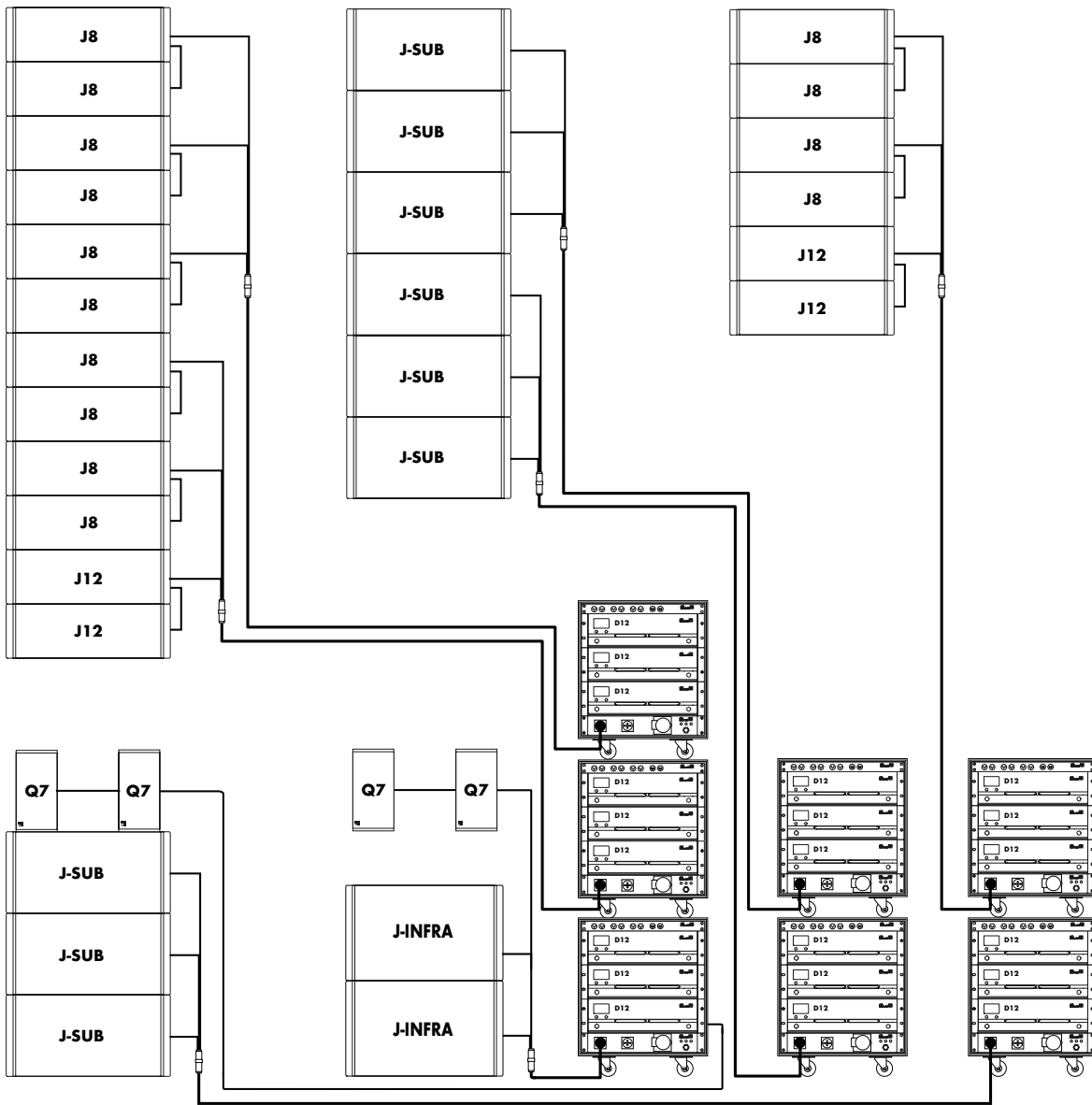
Z5322 LKS19 adapter F to 3 x EP5 M or
Z5324 LKS19 adapter F to 3 x NL8

The J-Series configuration examples



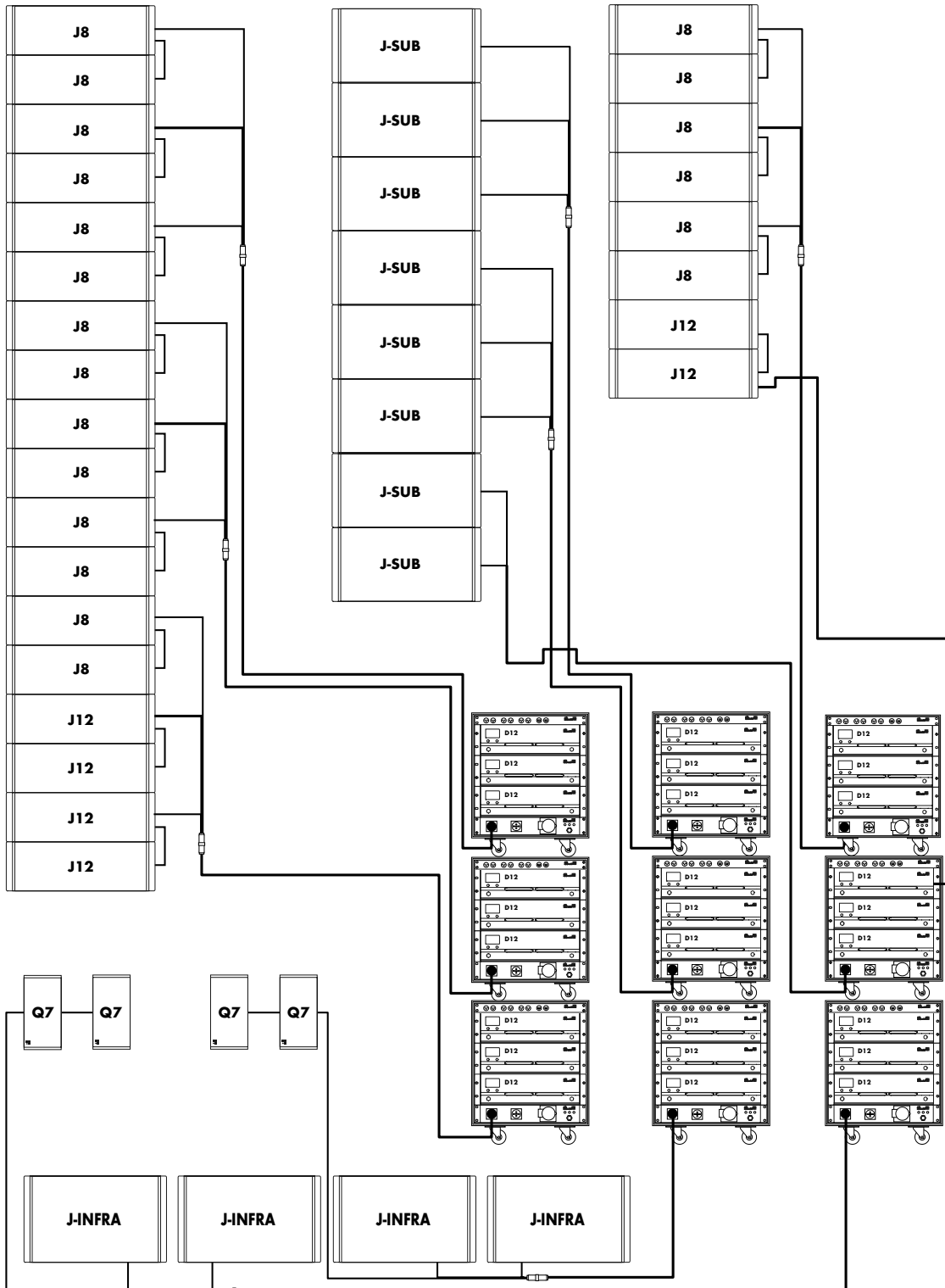
J-Series configuration example with a d&b Q1 array as outfill and d&b Q7 loudspeakers as nearfills

The J-Series configuration examples



J-Series arena configuration comprising J8/J12 mains and outfill arrays with J-SUBs and J-INFRAs ground stacked along with a flown J-SUB column and Q7s as nearfills

The J-Series configuration examples



J-Series arena configuration comprising J8/J12 mains and outfill arrays with J-INFRAs ground stacked as sub array along with a flown J-SUB-column and Q7s as nearfills

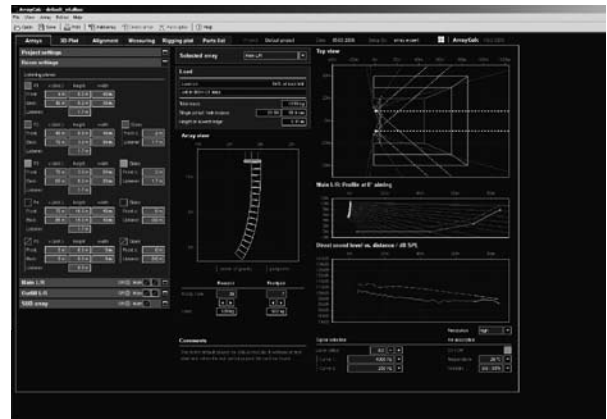
The d&b ArrayCalc calculator

d&b ArrayCalc calculator

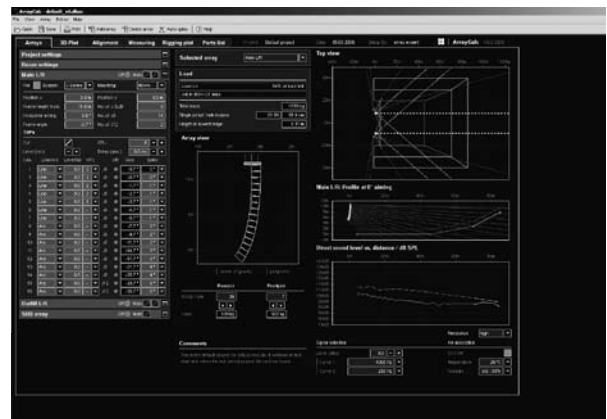
For both acoustical and safety reasons d&b line arrays must be designed using the d&b ArrayCalc simulation tool. From Version 5 onwards it is a program available for operation with both Microsoft Windows¹, Version XP or higher, and Mac OS² X, Version 10.4.10 or higher. The features include defining the quantity and aiming of loudspeakers, calculating SPL mappings, subwoofer array setups, time alignment between arrays, weights and overall dimensions of arrays as well as calculating printable rigging plots and parts lists.

ArrayCalc calculates and displays the physical parameters of up to seven stereo pairs or individual arrays including the mechanical load conditions within a column, load safety information, load values for rigging points and displays load safety warnings should an overload occur. ArrayCalc uses a sophisticated mathematical model synthesizing each loudspeaker's wave front with an array of closely spaced point sources. Using complex data (phase information) level distribution is calculated in multiple frequency bands for up to five main audience areas and side tiers. It also calculates the resulting dispersion of horizontally arrayed subwoofers at different frequencies and calculates the delay values to achieve a desired far field dispersion. The display of the arrival times of the individual arrays at a selectable test point allows a precise time alignment. The ArrayCalc software comprises six main sheets; Arrays and SUB Array, 3D Plot, Alignment, Measuring, Rigging and Parts list.

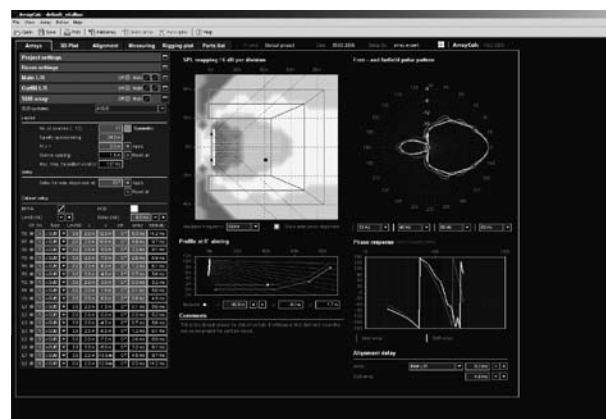
The Array Page allows up to five different listening planes to be defined, with optional side extensions. The left section allows editing of the project, the room, various array types and quantities, various individual and grouped controls and monitoring functions and the definition of the profile of each array. For every single loudspeaker, Line/Arc and HFC modes can be configured and headroom is monitored using a virtual GR LED. An Auto splay function proposes initial vertical splay angles between the loudspeakers; these can then be adjusted manually. The middle section displays a side view of the selected array, displaying overall mechanical size and rigging information. In the right section the top view graphic shows a plan view of the audience areas, the locations of the arrays and their horizontal aiming while highlighting the selected one. The profile shows a cross section through the active listening plane on the horizontal aiming axis of the selected array and the aiming axis of each loudspeaker. The Direct sound level vs. distance plot shows the direct sound level over distance for either: two selectable frequency bands, or differently weighted



Room Settings

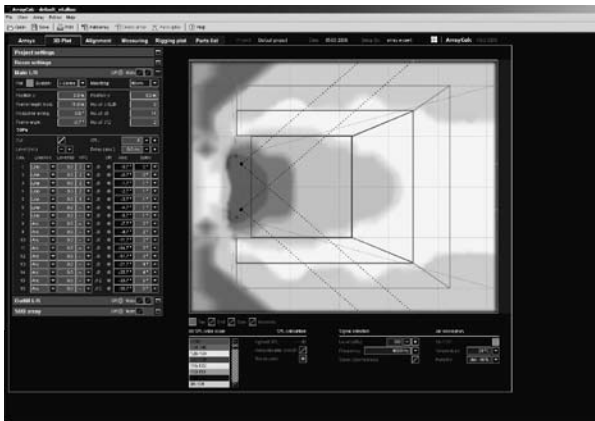


Arrays



SUB Array

The d&b ArrayCalc calculator



3D Plot

broadband summed levels for different input signals and levels. Also air absorption depending on temperature and relative humidity can be taken into account.

The SUB Array section allows the definition and placement of up to twenty five subwoofer positions. Based on subwoofer type and positioning, the resulting coverage and far field polar patterns are calculated for multiple frequencies. The software will also generate the necessary delay times needed to achieve a specific nominal dispersion angle. Calculated phase response plots allow simulation of time alignment between flown arrays and the subwoofer array for a given reference point.

On the 3D Plot page, the summed SPL of all active arrays can be mapped onto the listening planes optionally using complex summation for low frequencies.

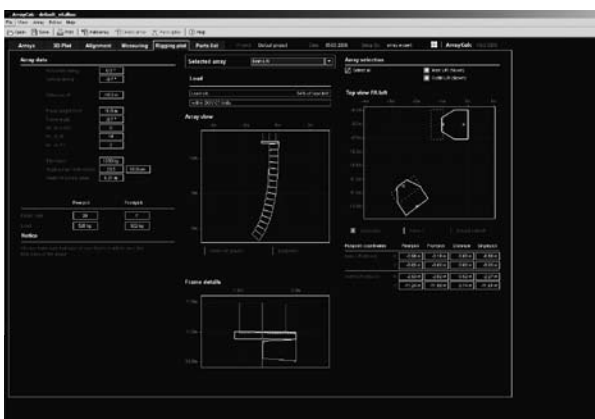
The Alignment page displays the arrival times of multiple arrays for a selectable reference point to help with optimisation. The Measuring sheet can be used to define the coordinates of the listening planes using trigonometry and data from a laser inclinometer and a rangefinder.

The Rigging plot is a printable sheet that displays the physical parameters and load information such as array dimensions, weights and rigging point locations. The Parts list is a printable sheet providing a detailed list of all the loudspeakers and rigging components required for the design.

Both the d&b "TI 385 J, Q and T-Series system design, d&b ArrayCalc" which provides further information and the ArrayCalc program itself, are available for download at www.dbaudio.com.



Alignment



Rigging Plot

¹ Microsoft Windows is a registered trademark or trademark of Microsoft Corporation in the United States and/or other countries

² Mac OS is a trademark of Apple Inc., registered in the U.S. and other countries

The J-Series product overview

	Code	Description
Loudspeakers	Z0650.000	J8 Loudspeaker EP5 connector
	Z0650.010	J8 Loudspeaker NL8 connector
	Z0651.000	J12 Loudspeaker EP5 connector
	Z0651.010	J12 Loudspeaker NL8 connector
	Z0660.000	J Subwoofer EP5 connector
	Z0660.010	J Subwoofer NL8 connector
	Z1000.000	J-INFRA Subwoofer EP5 connector
	Z1000.010	J-INFRA Subwoofer NL8 connector
Amplifiers	Z2600.000	D12 Amplifier EP5 (115/230 V)
	Z2600.002	D12 Amplifier NL8 (115/230 V)
	Z2600.300	D12 Amplifier EP5 (100/200 V)
	Z2600.302	D12 Amplifier NL8 (100/200 V)
Remote network	Z3000.000	R1 Remote control software (available as a download from www.dbaudio.com)
	Z3001.000	R10 Service software (available as a download from www.dbaudio.com)
	Z6118.000	R60 USB to CAN interface
	Z6124.000	R70 Ethernet to CAN interface
	Z6116.000	RJ 45 M Terminator
	Z6122.000	Bopla mounting clamp
Z6123.000	Bopla mounting clamp upright	

The J-Series product overview

	Code	Description
Cables	Z2297.xxx	MC4SD EP5 cable various length
	Z5320.010	MC12SD LKS19 10 m
	Z5320.015	MC12SD LKS19 15 m
	Z5320.025	MC12SD LKS19 25 m
	Z5320.030	MC12SD LKS19 30 m
	Z5321.000	LKS19 adapter M to 3 x EP5 F
	Z5322.000	LKS19 adapter F to 3 x EP5 M
	Z5323.000	LKS19 adapter M to 3 x NL8
	Z5324.000	LKS19 adapter F to 3 x NL8
	K3111.000	MC4SD cable
	K3115.000	MC12SD cable
	Racks	Z5310.000
Cases	E7441.000	Touring case 1 x J Flying frame
Lids	E7919.000	J Wheelboard
	E7910.000	J Subwoofer wooden lid
	E7920.000	J-INFRA wooden lid
Accessories	Z5300.000	J Flying frame
	Z5303.000	J Safety chainset
	Z5305.000	J Hoist connector chain

