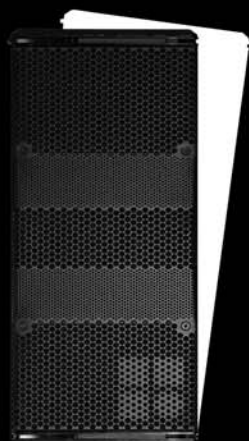
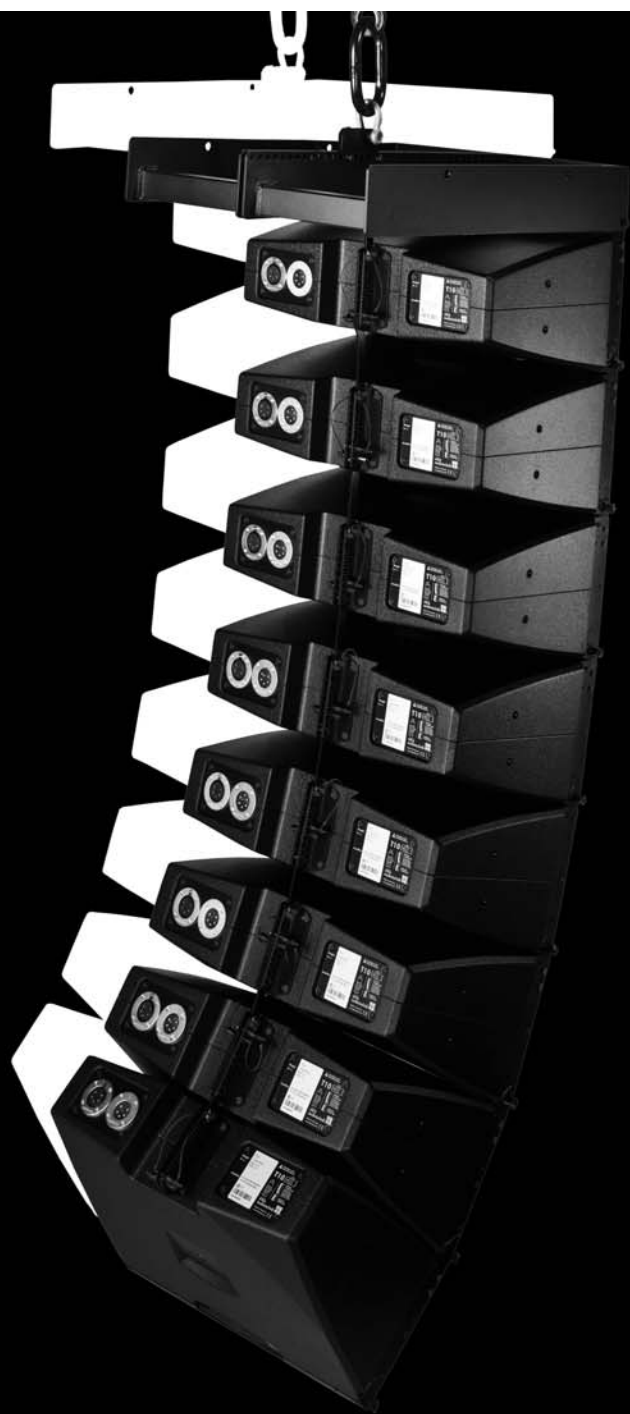


The T-Series



The T-Series

The **d&b T-Series** continues along the established d&b audiotechnik System reality approach, adding further dimensions to d&b's maxima. In common with most of the d&b Series it is intentionally designed to address an extremely wide range of small to medium sized applications and to offer unparalleled flexibility of deployment. Control of loudspeaker directivity behaviour is a particular fixation at d&b, as is achieving the highest acoustical output power while at the same time keeping system size and weight to an absolute minimum. The T-Series is as equally suited to use in configurable arrays as it is to stand-alone solutions, even within the most arduous and challenging sound reinforcement situations.

It also embodies the d&b holistic approach to sound reinforcement solutions; integrating loudspeakers, electronics, mechanical deployment assemblies, remote control functions and setup design tools for precise calculation of array performance. Ultimately, the T-Series continues the "d&b specific" tradition of combining a neutral, intelligible sound character that is clear and transparent even at high sound pressure levels providing the engineer with an efficient, effortless tool and a neutral platform.

The broad application scope of the T-Series ranges from multiple cabinet line arrays through to single stand-alone loudspeakers for deployment in locations sharing the same fundamental requirements to achieve precise control of directivity and maintain this to the lowest possible frequency.

A combination of techniques is used to perfectly satisfy these requirements, dipolar low frequency driver arrangements, high excursion drivers and a unique combination of a rotatable waveguide horn and acoustic lens. The light weight material used to construct the T10 allows for a very high cabinet wall thickness providing exceptional damping and acoustic properties. The use of neodymium magnets in the driver assemblies significantly increases the ratio of acoustic output power against weight. The unobtrusive visual design, compact dimensions, light weight, high power and exemplary directivity performance makes the T-Series loudspeakers the perfect option for speech and music in many theatre, conference and presentation situations, live television and orchestral shows, particularly in situations where considerable gain before feedback is an absolute requirement.

The T-Series integrates specially designed unobtrusive rigging to allow quick and simple deployment, whether ground supported or flown. The d&b ArrayCalc calculator predicts the performance of arrays enabling simple and accurate system planning and removes the usual trial and error in highly pressured onsite situations.

The 2-way passively crossed over **T10** loudspeaker may be deployed in multiples as elements of line arrays that maintain horizontal constant directivity down to approximately 600 Hz or as a high directivity point source loudspeaker. Accurate control of horizontal directivity is further enhanced by a large frequency overlap through

the crossover range, while adaption for line source or point source orientation is achieved without the use of any tools. At the core of the design is a unique combination of a rotatable horn coupled with an acoustic lens within the loudspeaker grill assembly. The T10 HF driver is fitted to a waveguide horn producing vertical line source directivity with a 90° horizontal pattern, the acoustic lens widens this to 105° for line array applications.

Rotation of the horn by 90° produces an accurate point source dispersion transforming a vertically oriented T10 into a stand-alone full range loudspeaker with a 90° horizontal and 35° vertical directivity pattern. The recessed dipolar positioning of the two 6.5" low frequency drivers mechanically assists the time alignment with the 1.4" exit HF driver.

When the T10 is deployed upright as a point source, the vertical directivity control extends approximately one octave lower than similarly sized biaxial loudspeakers.

The **T-SUB** shares the same width and integrated rigging fittings as the T10 for deployment either flown at the top of a T10 array or as a separate column. It can also be ground stacked. It is used to increase the low frequency headroom and extend the bandwidth of a T10 column down to 47 Hz. The bass-reflex design utilizes a high excursion 15" driver with a neodymium magnet assembly and employs d&b SenseDrive technology when driven by the D12 amplifier.

The d&b **D6** and **D12** dual channel amplifiers realize the complete system. They provide two different power ranges, incorporate d&b loudspeaker specific configuration information, including the T-Series loudspeakers and have analog and digital signal inputs and links. These devices are specially designed and manufactured by d&b utilizing digital signal processing and include 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 additionally offers a 2-Way Active mode and a Mix TOP/SUB output configuration, output connector options as well as d&b SenseDrive.

The D6 and D12 amplifiers have **d&b Remote network** interfaces 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.

To complete the picture, the petite yet highly versatile **T-Series** upholds the d&b maxim to maintain the compatibility and sound character between systems enabling them to be easily and predictably combined: an important requirement for simple, effortless setups in ever changing, fast and flexible production environments.

The T-Series



T10 loudspeaker in line source orientation



T10 loudspeaker in point source orientation



T subwoofer



D6 amplifier



D12 amplifier

The D6 and D12 amplifiers

D6 and D12 amplifiers

The D6 and D12 are dual channel amplifiers developed and manufactured by d&b utilizing Digital Signal Processing (DSP) to incorporate loudspeaker specific configuration information and functions. These are designed for use with d&b loudspeakers, have both digital and analog signal inputs as well as link outputs, remote control and monitoring capabilities and switch mode power supplies. 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 are contained within them, the exception being that the D6 does not include 2-Way Active and B2-SUB configurations.

The digital elements of the D6 and 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 amplifiers 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 changes.

The D6 and D12 amplifiers also detect 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 to report the system condition after a show.

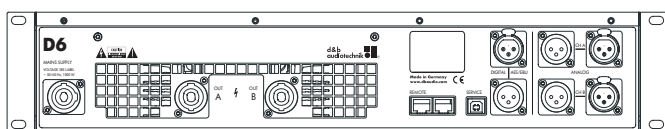
d&b Load monitoring, on the other hand, enables automatic and continuous impedance monitoring and along with Input monitoring is designed for incorporation within applications specified to the requirements stated in the International Standard IEC 60849 'Sound Systems for Emergency Purposes'. Both can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

The D6 utilizes a switch mode power supply with PFC suitable for mains supply voltages 100 V/115 V/200 V/230 V, 50 - 60 Hz whilst the D12 utilizes an autosensing switch mode power supply for mains voltages 115/230 V, 50 - 60 Hz (optional 100/200 V). Both power supplies have over voltage protection and each amplifier has a temperature and signal controlled fan to cool the internal assemblies.

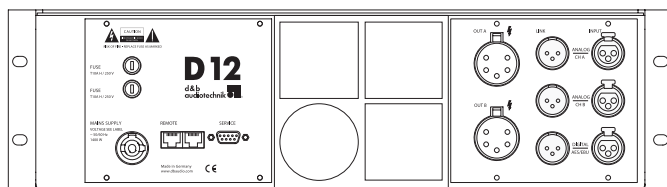
The 2 RU lightweight D6 is specifically designed to deliver medium power into low impedance loads between 4 and 16 ohms. The 3 RU D12 is specifically designed to produce high power into low impedance loads, typically those between 4 and 16 ohms. Due to differences in impedance response against frequency, the maximum number of cabinets driven by each D12 channel varies depending on the loudspeaker type.

Apart from selectable output configurations for dual channel, Mix TOP/SUB and 2-Way Active mode, the D12 also provides d&b SenseDrive for use with the LF drivers in d&b active loudspeakers and subwoofers.

Both amplifiers house an I/O panel containing: analog signal inputs with link outputs for each channel, an AES/EBU digital input with a link output and NL4 loudspeaker outputs. The D12 I/O panel additionally offers the options of EP5 or NL8 loudspeaker outputs. The two RJ 45 REMOTE sockets at the rear of the D6 and the D12 amplifiers integrate them into the d&b Remote network via CAN-Bus, enabling remote control and/or monitoring. A USB-B (D6) or a SUB-D9 (D12) SERVICE interface is provided to enable future firmware updates containing new loudspeaker configurations or additional functions to be loaded to the units.



D6 rear view



D12 rear view

The D6 and D12 amplifier data

D6 Display

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

D6 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
.....except 2-Way Active and B2-SUB
Frequency generator.....Pink noise or Sine wave

D6 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.....NL4
REMOTE.....2 x RJ 45 parallel
SERVICE.....USB Type B

D6 Protection circuits

Mains inrush current limiter.....1.5 A RMS at 230 V
Loudspeaker switch on delay.....Approx. 2 sec.
Overvoltage protection.....Up to 400 VAC

D6 Data (linear setting with subsonic filter)

Rated output power (THD+N < 0.1%).....
.....2 x 350 W into 8 ohms, both channels are driven
.....2 x 600 W into 4 ohms, both channels are driven
S/N ratio (unweighted, RMS).....>110 dB

D6 Digital Signal Processing

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

D6 Power supply

Switch mode power supply for.....
.....100/115/200/230V, 50 - 60 Hz
Mains connector.....PowerCon^{® 2}

D6 Remote network

Remote network.....CAN-Bus

D6 Dimensions, weight

Height x width x depth.....2 RU x 19" x 353 mm /13.9"
Weight.....8 kg /17.6 lb

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.

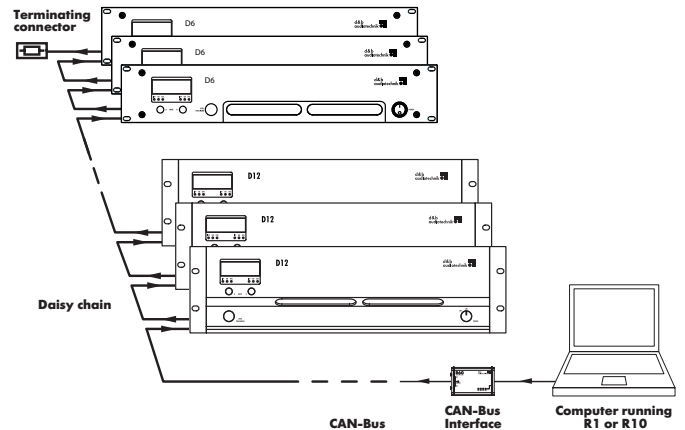
In installation projects system integrators can configure the remote network to offer access to different levels of control tailored to the operational demands. For example, simplified functionality for daily use and more complex functionality when multiple applications are required within one installation.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

d&b Remote interfaces

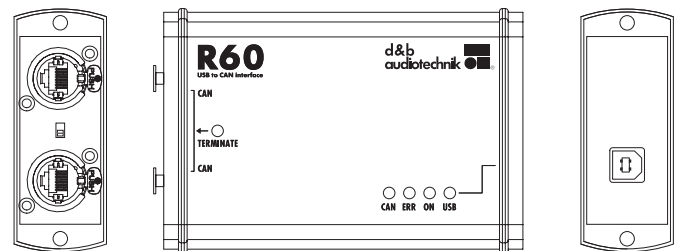
Every d&b amplifier is fitted with a Remote interface for the Controller Area Network (CAN) Bus. Each D6 and D12 has two REMOTE connectors (RJ 45) to enable the CAN-Bus signal to be daisy chained through them. A simple d&b Remote network application consists of a computer running R1 Remote control software,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

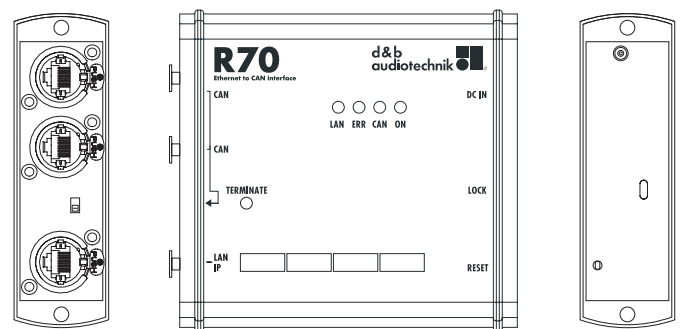
For further information about CAN-Bus cabling requirements and interfaces please refer to the d&b TI 312 d&b Remote network, which is available for download at www.dbaudio.com.



d&b Remote network



Z6118 R60 USB to CAN interface



Z6124 R70 Ethernet to CAN interface

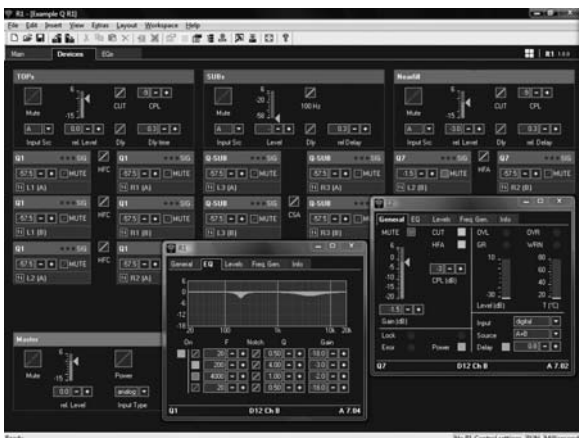
Cable cross section	Maximum bus cable length with numbers of amplifiers	
	32	100
0,25 mm ² (24 AWG)	180 m (600 ft)	140 m (460 ft)
0,75 mm ² (18 AWG)	500 m (1650 ft)	330 m (1100 ft)

Examples of bus cable length

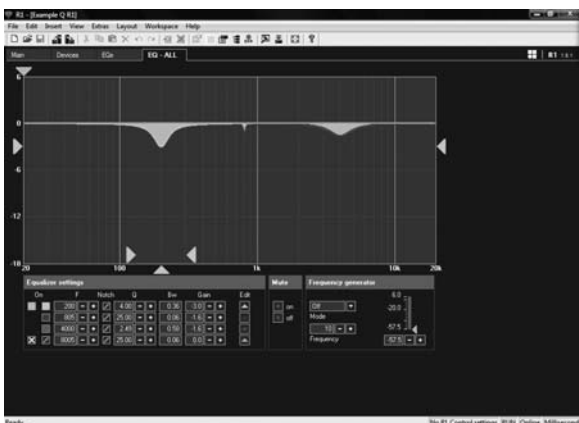
The d&b Remote software



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 2000 SP4/XP SP2/Vista¹. 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 T1 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 2000/XP/Vista 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 T10 loudspeaker

T10 loudspeaker

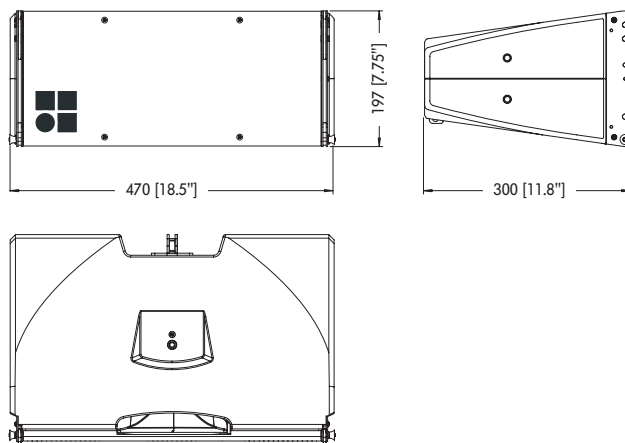
The T10 cabinet is a passive 2-way design that houses 2 x 6.5" drivers, a 1.4" exit HF compression driver and can be either used as a line source or high directivity point source loudspeaker. The very compact loudspeaker design is a unique combination of a rotatable waveguide with horn and an acoustic lens. The horn can easily be rotated from outside the loudspeaker without tools or removing the front grill. This is achieved through apertures at the cabinet sides which allow rotation to both the line and point source positions. It provides a vertical line source with a 90° horizontal dispersion that is maintained down to approximately 600 Hz, whilst the integrated lens in the front grill widens the HF dispersion in line array mode to 105°. When the loudspeaker is used upright as a point source, the lens curves the wave front of the line source providing a 90° x 35° dispersion pattern. The two 6.5" neodymium LF drivers are positioned in a dipolar arrangement providing an exceptional dispersion control even at lower frequencies. The T10 cabinet is constructed from polyurethane integral hard foam with an impact resistant finish and has integrated line array rigging hardware. The front of the loudspeaker cabinet is protected by a rigid metal grill backed by an acoustically transparent foam. Mounted on the rear panel are two EP5 or NL4 connectors wired in parallel.

System data

Frequency response (-5 dB standard).....	68 Hz - 18 kHz
Frequency response (-5 dB CUT mode).....	120 Hz - 18 kHz
Max. sound pressure (Line/Arc setup, 1 m, free field) ¹	
with D6.....	129 dB
with D12.....	132 dB
Max. sound pressure (PS setup, 1 m, free field) ¹	
with D6.....	127 dB
with D12.....	130 dB
Input level (100 dB SPL / 1 m).....	-13 dBu

Loudspeaker data

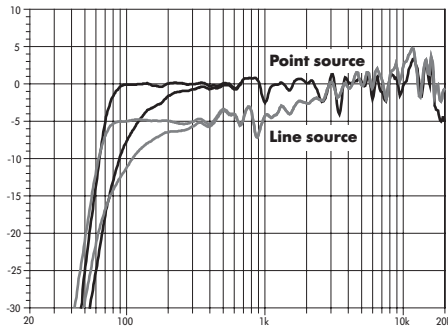
Nominal impedance.....	16 ohms
Power handling capacity (RMS/peak 10 ms).....	200/800 W
Nominal dispersion angle (line source, horizontal).....	105°
Nominal dispersion angle (point source, h x v).....	90° x 35°
Components.....	2 x 6.5" driver with neodymium magnet
.....	1.4" exit compression driver on rotatable waveguide
.....	Passive crossover network
Connections.....	2 x EP5, optional 2 x NL4
Pin assignments.....	EP5: 1+/1-, NL4: 1+/1-
Weight.....	11kg (24 lb)



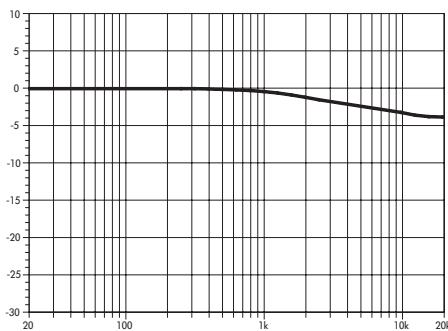
T-Series cabinet dimensions in mm (inch)

¹ Broadband measurement, pink noise, crest factor 4, peak measurement, linear weighting

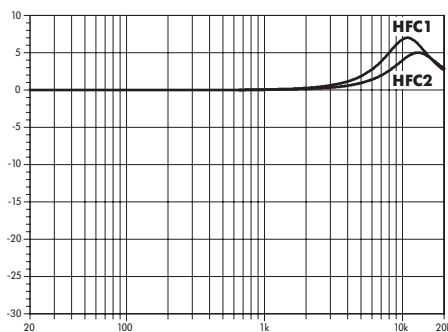
The D6 and D12 configurations



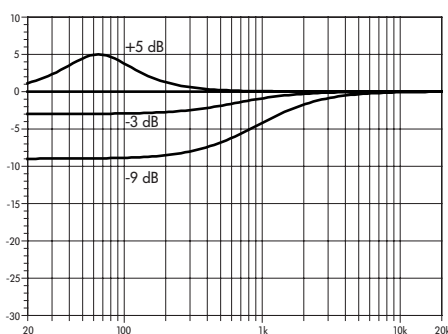
T10 frequency response, standard and CUT modes (single cabinet)



Frequency response correction of HFA circuit



Frequency response correction of HFC circuit



Frequency response correction of CPL circuit

T10 with D6 and D12

Selecting the T10 configuration in the D6 and D12 dual channel amplifiers enables up to four T10 loudspeakers to be driven by each channel. When the D12 is operated in Mix TOP/SUB mode the T10 cabinets and respective active subwoofers can be linked together locally and fed by a single 4-wire cable from either amplifier output connector.

The D6 and D12 amplifiers have three configurations for T10 cabinets, Line, Arc and PS (point source). The Line or Arc configurations are selected when the T10 loudspeaker is used as a line array. The chosen configuration will depend on the curvature of the array. The Line configuration is selected when groups of four or more T10 cabinets are coupled in a straight long throw array section, where the splay angles to adjacent cabinets are 0° to 2°. The Arc configuration is selected when T10 cabinets are used in curved array sections, where the splay angles to adjacent cabinets are 3° or more. Within a typical array both amplifier configurations are used. The PS configuration is selected when the T10 is used as a single spherical loudspeaker.

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

Set to CUT, the T10 low frequency level is reduced. The T10 is now configured for use with the T subwoofer or other d&b subwoofers.

Selecting HFA mode (High Frequency Attenuation, PS setup only), the HF response of the T10 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. HFA 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.

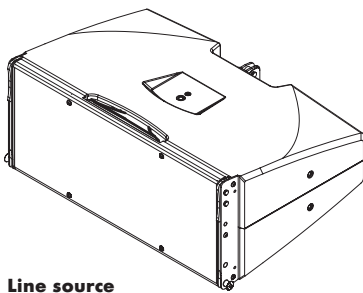
Selecting the HFC (High Frequency Compensation, Line or Arc setup only) circuit compensates for loss of high frequency energy due to absorption in air when loudspeakers are used to cover far field listening positions. The HFC circuit has two different settings, which should only be used for those cabinets covering the following respective distances: HFC1 for distances between 25 m (80 ft) and 50 m (160 ft), and HFC2 for distances further than 50 m (160 ft).

The CPL (Coupling) circuit compensates for coupling effects between the cabinets. These effects increase as the length of the line array is extended. CPL begins gradually at 1 kHz, with the maximum attenuation below 400 Hz, providing a balanced frequency response when T10 cabinets are used in arrays of four or more. The function of the CPL circuit in these amplifiers 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).

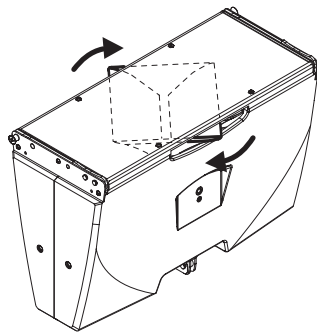
The T10 electroacoustic concept

T10 electroacoustic concept

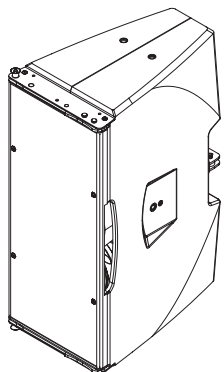
The unique combination of a rotatable waveguide with horn and an acoustic lens enables T10 to transform from line source to point source mode easily from outside without tools or removing the front grill. It provides a vertical line source with a 90° horizontal dispersion, whilst the integrated lens in the front grill widens the HF dispersion in line source mode to 105° . When the loudspeaker is used upright as a point source, the lens curves the wave front of the line source providing a $90^\circ \times 35^\circ$ dispersion pattern.



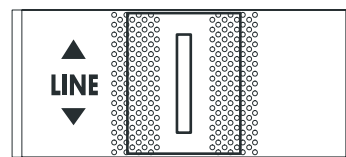
Line source



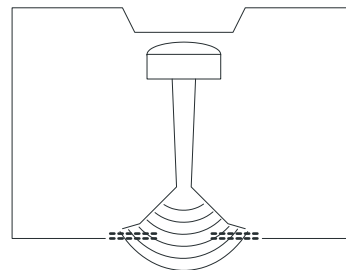
Rotating horn



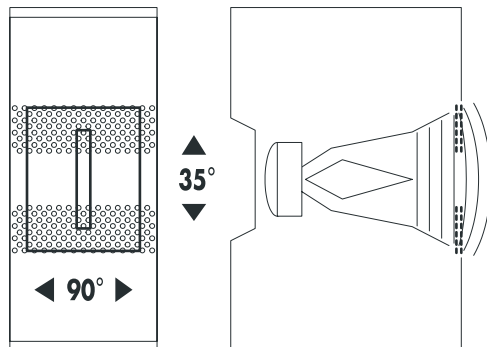
Point source



$\langle 105^\circ \rangle$

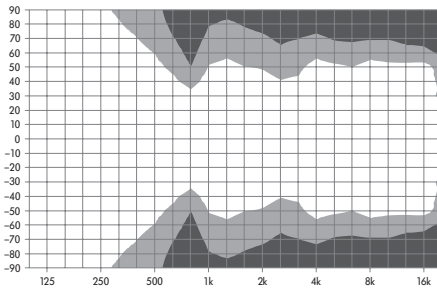


T10 horn and lens in line source setup

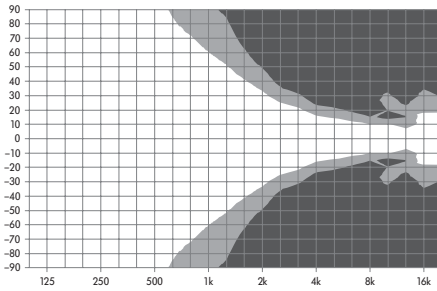


T10 horn and lens in point source setup

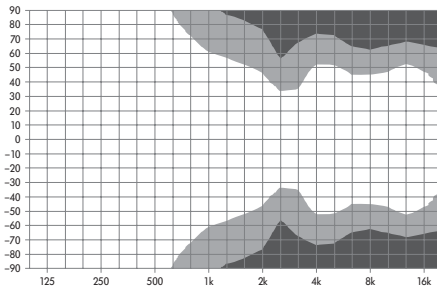
The T10 electroacoustic concept



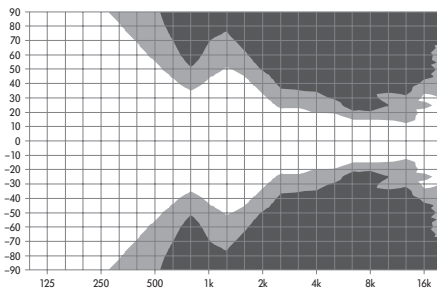
T10 horizontal dispersion characteristics, line source¹



T10 vertical dispersion characteristics, line source¹



T10 horizontal dispersion characteristics, point source¹



T10 vertical dispersion characteristics, point source¹

¹ Dispersion angle vs frequency plotted using lines of equal sound pressure (isobars) at -6 dB and -12 dB

The T subwoofer

T subwoofer

The T-SUB is the subwoofer for the T-Series and is an actively driven bass-reflex design housing a long excursion 15" driver with a neodymium magnet. It can be used to supplement the LF headroom of the T10 loudspeaker in various combinations, ground stacked or flown, either integrated on top of a T10 array or as a separate column. The cabinets are mechanically connected using rigging links on both sides of the cabinet front which slide out when needed, and with a central splay link at the rear of the cabinet. All necessary rigging components are mounted to the cabinet. The T-SUB can also supplement the T10 loudspeaker in ground stacked applications where the T-SUB can mechanically support it.

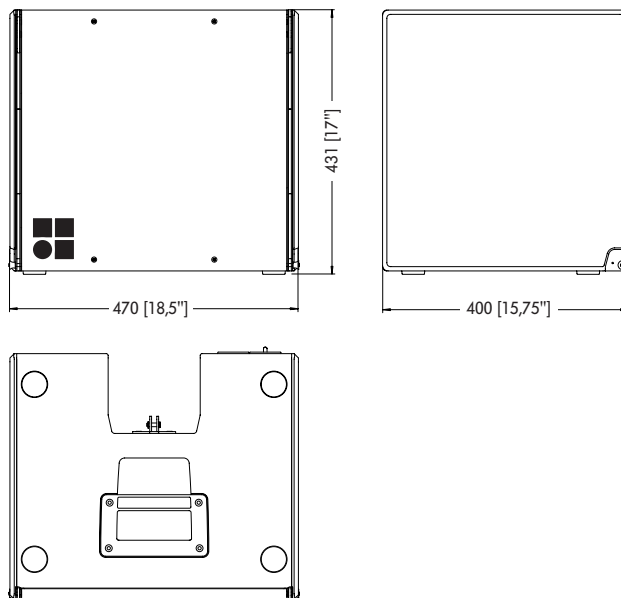
The T-SUB cabinet is constructed from marine plywood and has an impact resistant paint finish and a handle on the top panel. The front of the loudspeaker cabinet is protected by a rigid metal grill in front of an acoustically transparent foam. Mounted on the rear panel are two EP5 or NL4 connectors wired in parallel.

System data

Frequency response (-5 dB standard).....	47 Hz - 140 Hz
Frequency response (-5 dB 100 Hz mode).....	47 Hz - 100 Hz
Max. sound pressure (single cabinet, 1 m, free field) ¹	
with D6.....	127 dB
with D12.....	130 dB

Loudspeaker data

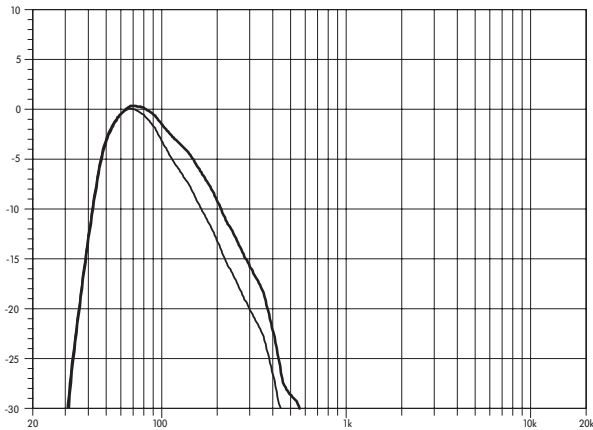
Nominal impedance.....	8 ohms
Power handling capacity (RMS/peak 10 ms).....	300/1600 W
Components.....	15" driver with neodymium magnet
Connections.....	2 x EP5 (optional 2 x NL4)
Pin assignments.....	EP5: 3/4 (NL4: 2+/2-)
Weight.....	17 kg (37 lb)



T-SUB cabinet dimensions in mm (inch)

¹ Broadband measurement, pink noise, crest factor 4, peak measurement, linear weighting

The D6 and D12 configurations



T-SUB frequency response, standard and 100 Hz modes

T-SUB with D6 and D12

Selecting T-SUB mode in the D6 and D12 dual channel amplifiers enables up to two T-SUB loudspeakers to be driven by the respective channel.

When the D12 is operated in Mix TOP/SUB mode the T-SUB cabinets and respective full range systems can be linked together locally and fed by a single 4-wire cable from either amplifier output connector.

For acoustic adjustment the function 100 Hz can be selected. If the 100 Hz mode is selected, the upper operating frequency of the system is reduced from 140 Hz to 100 Hz.

The D12 incorporates d&b SenseDrive 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 the D12 fitted with EP5 connectors and appropriate 5-wire cabling. For further information please refer to the d&b TI 340 SenseDrive, which is available for download at www.dbaudio.com.

The T10 rigging accessories

T10 rigging accessories

For line source applications the T10 cabinets are mechanically connected to the T Flying frame and subsequent loudspeakers using the rigging links attached to both sides of the cabinet front and the central splay link at the rear of the cabinet.

The T Flying frame is designed to support a maximum of twenty T10 loudspeakers and has a mounting plate that accepts inclinometers such as the Teqsas Lap-TEQ line array positioning tool. All necessary rigging components are mounted to the cabinet and slide out when needed. Splay angles between adjacent cabinets can be set in the range from 0° to 15° in 1° steps. The T subwoofer can also be attached to the T Flying frame either at the top of an array with subsequent T10 loudspeakers attached or as a column of T subwoofers.

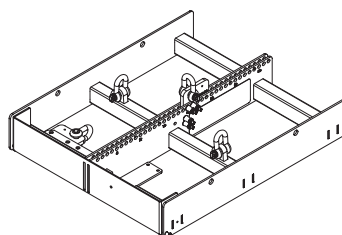
T10 arrays using three cabinets can be configured using the T Cluster bracket along with a loudspeaker stand, mounted with the loudspeaker stand adapter or flown using the TV spigot with fixing plate.

For point source applications the T10 cabinet is fitted with six threaded inserts to accept a variety of rigging accessories for deployment in different configurations.

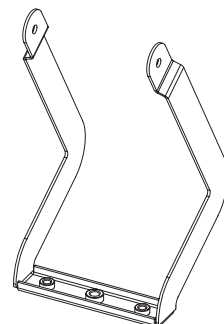
The T Flying bracket is designed to fit tightly around the loudspeaker to produce the minimum visual impact and can be fitted to a loudspeaker stand using the loudspeaker stand adapter or flown using the TV spigot with fixing plate.

Similarly the T Horizontal bracket enables the cabinets to be attached horizontally to trusses, walls or ceilings. Apart from accepting the T Horizontal bracket, the threaded inserts also accept the E8/E12 Flying adapter. These can be used together with the TV spigot M10 or the TV spigot 02 with the Pipe clamp for TV spigot to be attached to overhead bars or truss with a tube diameter up to 51 mm (2"). Alternatively two T10 cabinets in point source orientation can be arrayed vertically using a set of E8/E12 Flying adapters and the E8/E12 Flying adapter link.

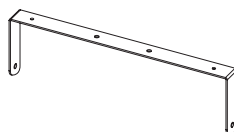
A detailed description of the T-Series rigging is given in the T-Series Rigging manual whilst a detailed description of planning and designing T-Series arrays is given in the technical information "TI 385 J, Q and T-Series system design, d&b ArrayCalc". Both can be downloaded from the d&b website as well as the d&b ArrayCalc array calculator at www.dbaudio.com.



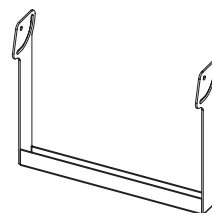
Z5370
T Flying frame



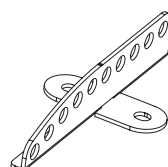
Z5371
T Flying bracket



Z5372
T Horizontal bracket



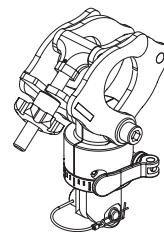
Z5373
T Cluster bracket



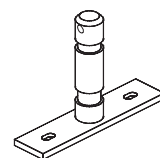
Z5354
E8/E12 Flying adapter



Z5355
E8/E12 Flying adapter link



Z5147
Rota clamp



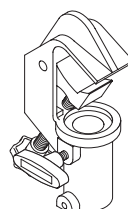
Z5010
TV spigot with fixing plate



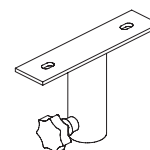
Z5015
TV spigot 02



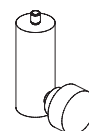
Z5029
TV spigot M10



Z5012
Pipe clamp
for TV spigot

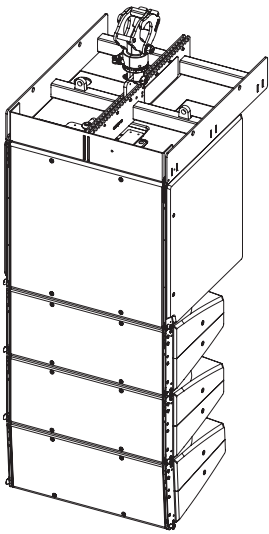


Z5024
Loudspeaker
stand adapter

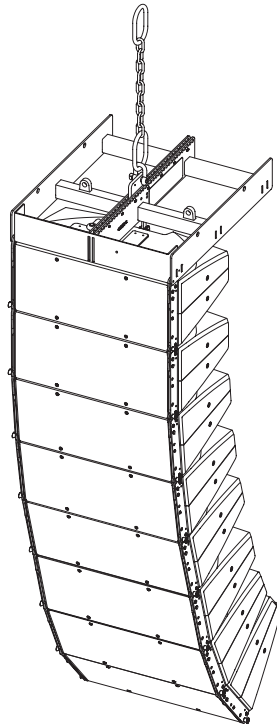


Z5034
Stand adapter
E0/E3

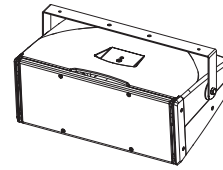
The T10 rigging examples



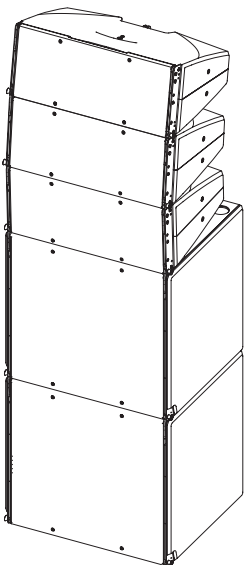
**T10/SUB line array with
Z5370 T Flying frame
Z5147 Rota clamp**



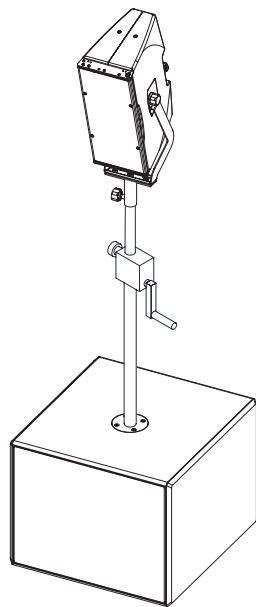
**T10 line array with
Z5370 T Flying frame
E6507 1t Shackle**



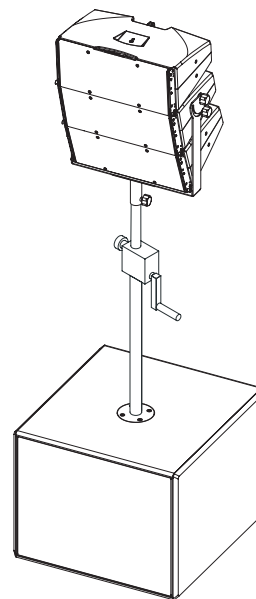
**T10 with
Z5372 T Horizontal bracket**



T10/SUB ground stack

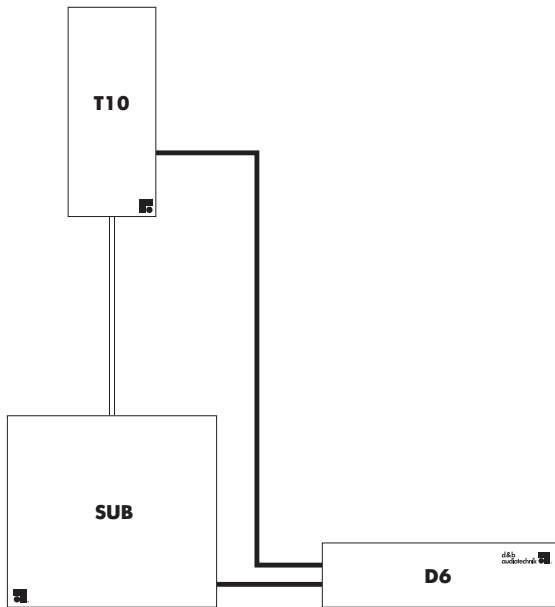


**T10 point source and E15X-SUB with
Z5013 Loudspeaker stand winder M20**

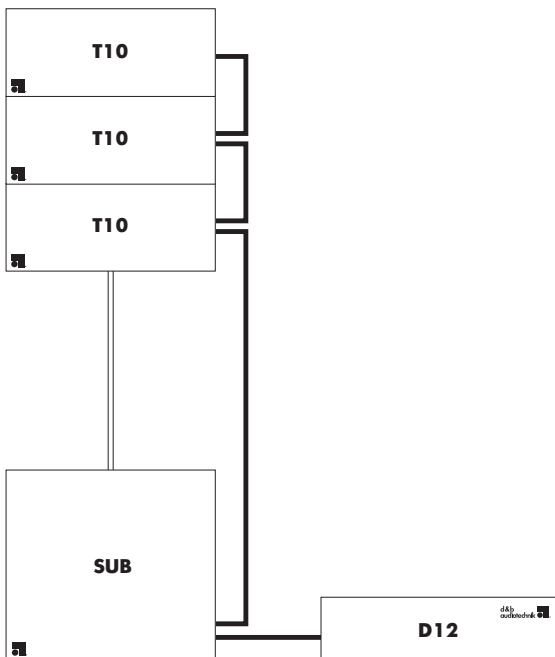


**T10 line array on Q-SUB with
Z5373 T Cluster bracket
Z5013 Loudspeaker stand winder M20**

The T-Series configuration examples

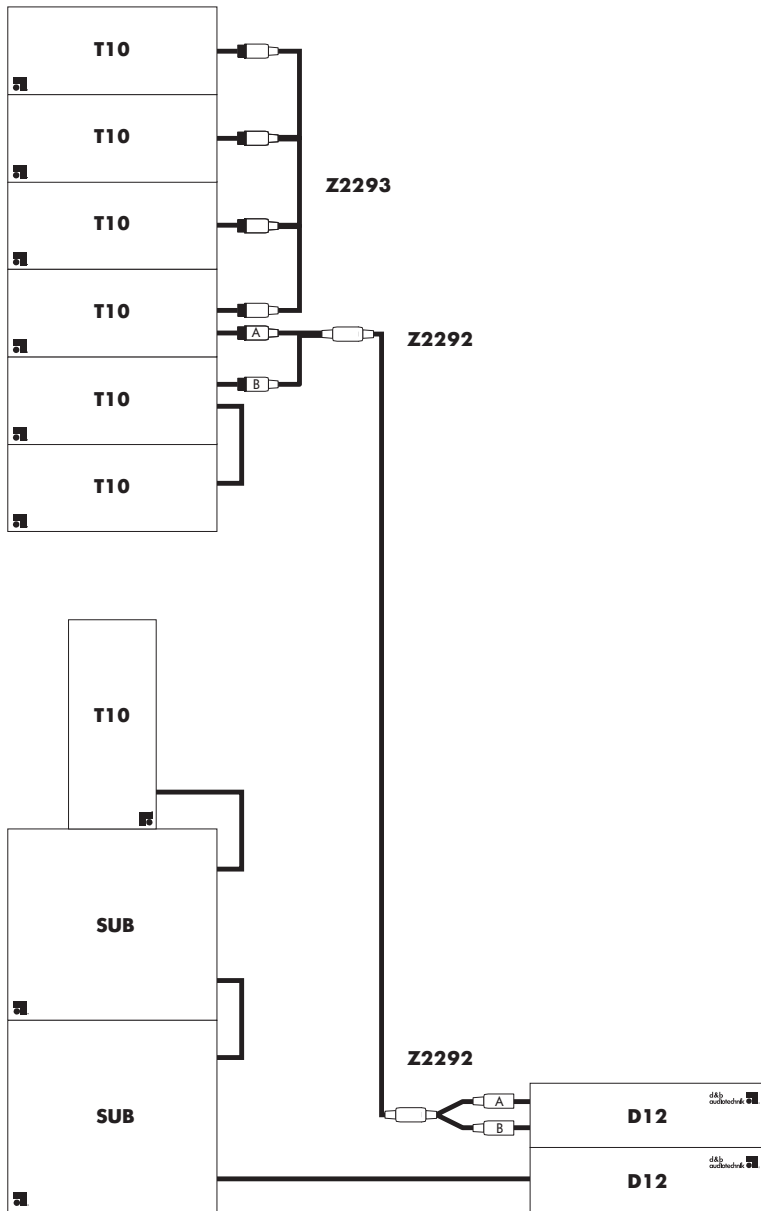


T10 loudspeaker in point source orientation on a subwoofer, with D6 amplifier in dual channel mode

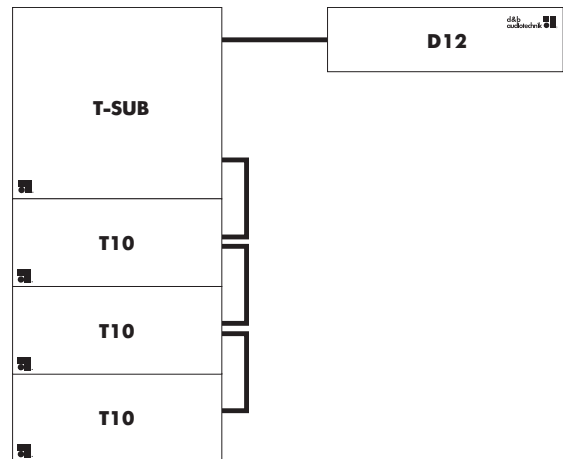


T10 line array on a subwoofer, with D12 amplifier in Mix TOP/SUB mode

The T-Series configuration examples

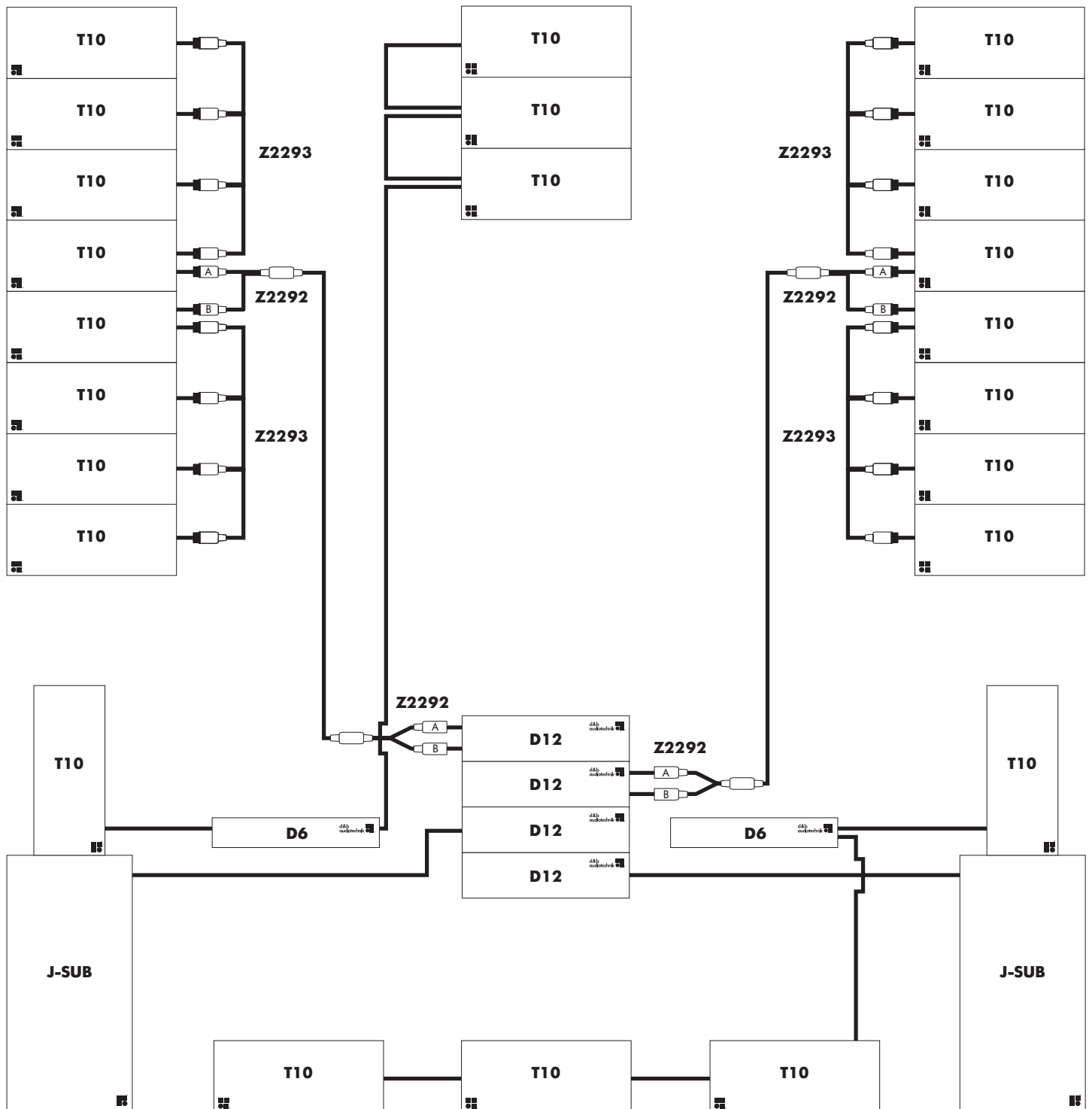


T10 flow line array with D12 amplifier in dual channel mode and T10 point source on ground stacked subwoofers with D12 amplifier in Mix TOP/SUB mode.



T10/T-SUB flown line array with D12 amplifier in Mix TOP/SUB mode

The T-Series configuration examples

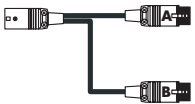


T10 flow line arrays in left/right configuration with D12 amplifiers in dual channel mode. T10 line array as centre cluster and T10 in point source orientation as fills with D6 amplifiers. J-SUBs with D12 amplifiers.

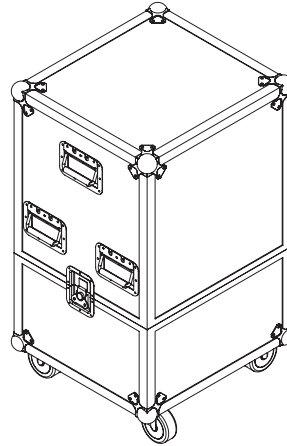
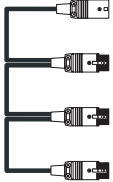
The T-Series cables and cases



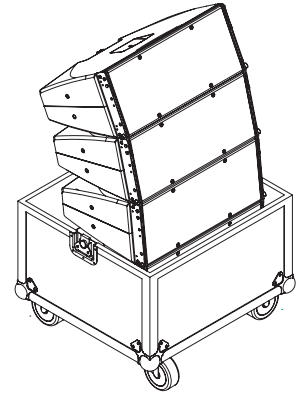
Z2292
T Splitset EP5
2 x M to 1 x F and 1 x M to 2 x F



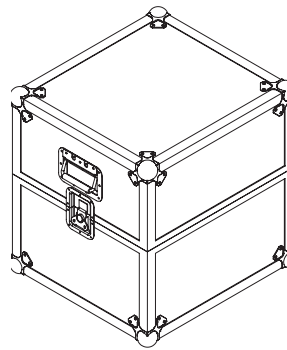
Z2293
T Linkset EP5 1 x M to 3 x F



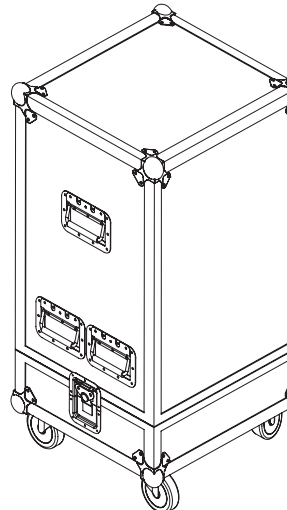
E7451
Touring case 4 x T10 sleeve, wheels



E7452
Touring case 2 x T10 lid



E7453
Touring case 2 x T-SUB sleeve, wheels



The d&b ArrayCalc calculator

d&b ArrayCalc calculator

For both acoustical and safety reasons T-Series 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.

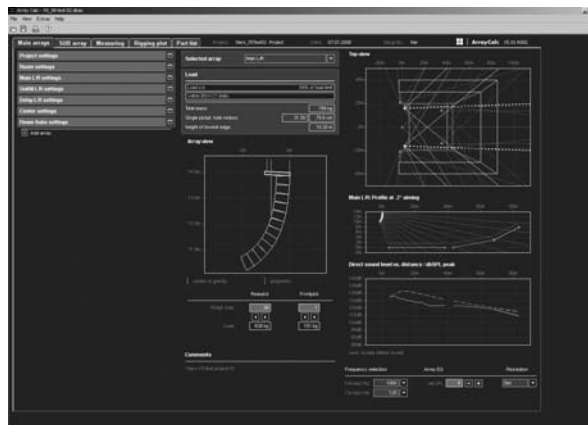
ArrayCalc supports d&b audiotechnik loudspeakers from the J-Series, Q-Series and T-Series; it is used for planning system configurations. This includes defining the quantity and optimum aiming of loudspeakers, calculating subwoofer arrays and the time alignment of these to the main arrays, documenting weights and overall dimensions of arrays as well as producing printable rigging plots and parts lists.

ArrayCalc calculates and displays the physical parameters of up to five individual arrays including the mechanical load conditions within a column, load safety information, load values for rigging points and displays warnings should an overload occur. ArrayCalc uses a sophisticated mathematical model synthesizing each loudspeaker's wave front with an array of narrowly spaced point sources. Using complex data (phase information) level distribution is calculated in multiple frequency bands for up to three main audience areas and optionally to side seating tiers. ArrayCalc also calculates resulting dispersion of horizontally arrayed subwoofers at different LF bands and the delay values to achieve a desired far field coverage. The display of the phase responses of both Main and Sub Array at a selectable test point allows an applicable time alignment to be defined between flown and ground stacked parts of the system.

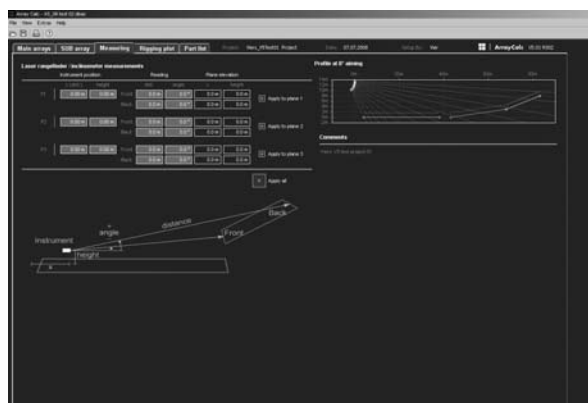
The ArrayCalc software comprises five main sheets; Main Arrays, Sub Array, Measuring, Rigging and Parts list. It also contains a link to the technical information document "TI 385 J, Q and T-Series system design, d&b ArrayCalc" in PDF format.

The sheet that is viewed immediately on opening the software contains various fields for entering parameters. Up to three different listening planes can be entered, and side extension to planes 2 and 3 can be selected. The left section allows editing of the project, the room, arrays, loudspeaker types, quantities, individual levels and definition of the vertical profile of each array. The middle section displays a side elevation of the selected array, displaying overall mechanical size and rigging information. On the right section the top view graphic shows a plan view of the audience areas, the locations of the arrays, their horizontal aiming while highlighting the selected one.

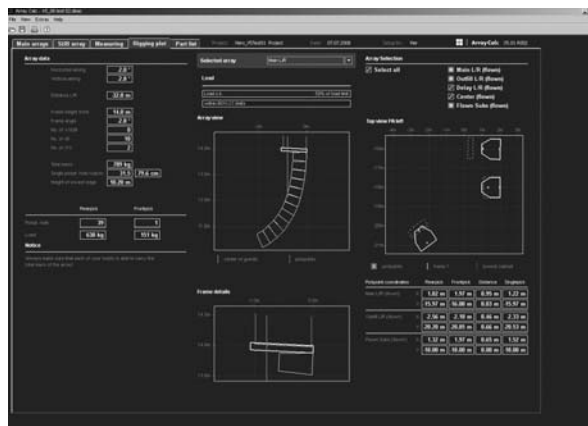
The profile shows a cross section through the active listening plane



Main page

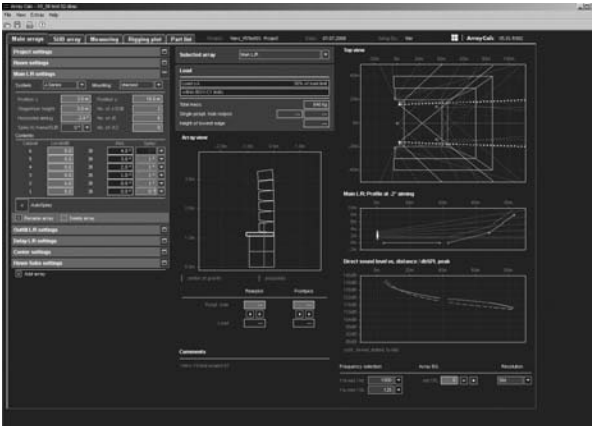


Measuring

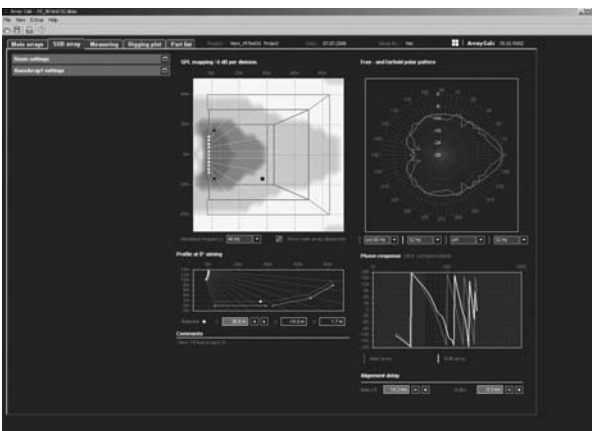


Rigging plot

The d&b ArrayCalc calculator



Stacked setup



SUB Array

on the horizontal centre axis of one array and the centre axis of each loudspeaker.

Any horizontal array aiming angle can be simulated. The Direct sound level vs. distance/dB SPL peak plot shows the peak direct sound level over distance of two selectable frequency bands for all active listening planes. These provide a reliable prediction of the direct sound distribution on the centre axis of the array. The Auto splay function calculates suggested vertical splay angles between the loudspeakers, these can then be adjusted manually. The array EQ function shows the effects of different settings for the amplifier CPL circuit on the response shown in the Direct sound level vs. distance/dB SPL plot.

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 complete list detailing all the loudspeakers and rigging components required to configure either a single column or a stereo system.

The Sub Array sheet allows the definition of up to seventeen subwoofer positions along a front line. In the design section different values may be entered or calculated, the main parameters and applicable values to achieve a desired bass coverage are displayed. The resulting distribution patterns are shown in the SPL mapping section as well as a second display showing free and far field polar patterns for selectable LF frequency bands. A test point can be placed at one location in the simulation to show the phase responses between a flown array and ground stacked subwoofers, time alignment can then be applied between these in order to match the phase response around the crossover region.

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.

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 T-Series product overview

	Code	Description
Loudspeakers	Z0550.000	T10 Loudspeaker EP5 connector
	Z0550.001	T10 Loudspeaker NL4 connector
	Z0560.000	T Subwoofer EP5 connector
	Z0560.001	T Subwoofer NL4 connector
Amplifiers	Z2700.000	D6 Amplifier NL4 (85 - 285 V)
	Z2600.000	D12 Amplifier EP5 (115 / 230 V)
	Z2600.001	D12 Amplifier NL4 (115 / 230 V)
	Z2600.300	D12 Amplifier EP5 (100 / 200 V)
	Z2600.301	D12 Amplifier NL4 (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
Cables	Z2294.xxx	MC5 EP5 cable various length
	Z2292.000	T Splitset EP5 2 x M to 1 x F and 1 x M to 2 x F
	Z2293.000	T Linkset EP5 1 x M to 3 x F
	Z2291.xxx	MC4 NL4 cable various length
	Z2296.000	NL4 Extension adapter
	K3110.000	MC5 cable unterminated
	K3106.002	MC4 cable unterminated
Cases	E7211.000	Touring rack 2 RU, 19" DD, shock mounted, handles
	E7419.000	Touring rack 3 RU, 19" DD, shock mounted, handles, window
	E7420.000	Touring rack 6 RU, 19" DD, shock mounted, handles, window, wheels
	E7424.000	Touring rack 9 RU, 19" DD, shock mounted, handles, window, wheels

The T-Series product overview

	Code	Description
Cases	E7451.000	Touring case 4 x T10 sleeve, wheels
	E7452.000	Touring case 2 x T10 lid
	E7453.000	Touring case 2 x T-SUB sleeve, wheels
Accessories	Z5370.000	T Flying frame
	Z5371.000	T Flying bracket
	Z5372.000	T Horizontal bracket
	Z5373.000	T Cluster bracket (3 deep)
	Z5010.000	TV spigot with fixing plate
	Z5012.000	Pipe clamp for TV spigot
	Z5015.000	TV spigot for Flying adapter 02
	Z5029.000	TV spigot M10
	Z5024.000	Loudspeaker stand adapter
	Z5034.000	Stand adapter E0/E3
	Z5147.000	Rota clamp
	Z5354.000	E8/E12 Flying adapter
	Z5355.000	E8/E12 Flying adapter link
	Z5009.000	Loudspeaker stand with winder
	Z5013.000	Loudspeaker stand winder M20
E6507.000	1t Shackle	
Misc.	Z5061.000	Standard cabinet paint 1 kg/2.2 lb

