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1. GENERAL INFORMATION

WELCOME!

Thank you for purchasing a product designed and developed in Italy by dBTechnologies! This active subwoofer is the result of years of experience and innovation in speakers, with the use of cutting-edge solutions in the fields of acoustics, electronics and materials research.

PRELIMINARY OVERVIEW

The DVA KS20 active subwoofer is an active subwoofer designed by building upon the innovation and professional quality of the DVA series. The semi horn-loaded configuration allows for acoustic optimization. The DSP, controlling the next-generation amplifier DIGIPRO G3, makes it possible to easily and accurately configure the sound behaviour in professional use configurations. When coupled with the new DVA K5 series line-array modules, it can meet any and all needs, in any installation and tour context.

The main features of KS20 are:

- powerful and noiseless amplification section, thanks to the new DIGIPRO G3 D-class amplifier which requires no active ventilation and makes it possible to achieve 1800 W peak power.
- SPL (peak) of 138 dB
- high-quality 2x18" woofers
- equipped with handles and mounting points to ensure fast and versatile use in any context
- fast and accurate DSP configuration using the delay, phase and crossover controls.

USER REFERENCES

To get the most from your DVA KS20 we recommend that you:

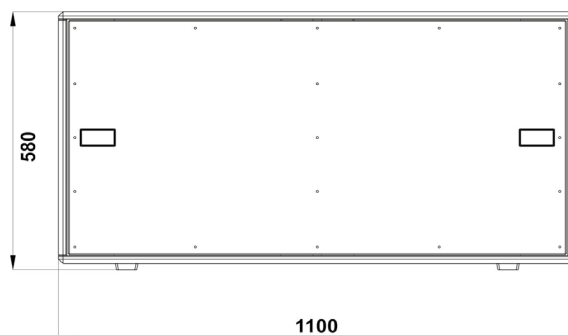
- thoroughly read the quick start user manual you will find in the package and this manual, and keep it throughout the product life.
- register the product on the site <http://www.dbtechnologies.com>, in the "SUPPORT" section
- Update the firmware to the latest version (check the section "FIRMWARE UPDATE")
- keep your proof of purchase and the WARRANTY (User manual "section 2").

MECHANICAL AND ACOUSTIC CHARACTERISTICS

DIMENSIONS AND HARDWARE

The DVA KS20 weighs 84 kg, and its dimensions are 1100 x 580 x 720 mm.

The wooden housing is equipped with 2 built-in mounting points; in particular, it has 2 points on its side, allowing to use the DRK-10/DRK-20 fly-bar; this way, when the subwoofer is arranged vertically, it can be stacked with the DVA K5 module. It also includes a free-standing mount with an M20 threaded hole.



ACOUSTIC COVERAGE

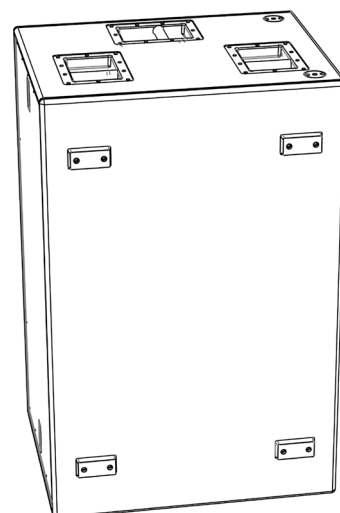
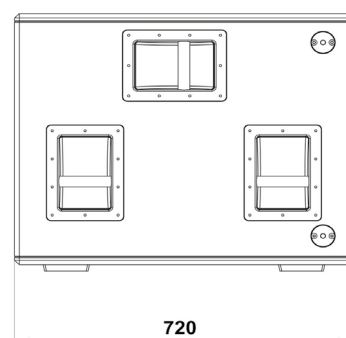
Using the phase and delay controls, you can fine-tune the most appropriate configuration (Endfire, Cardioid), to get optimum directivity in every context.

ACCESSORIES

The following items are available as optionals, for system installation, transport and protection:

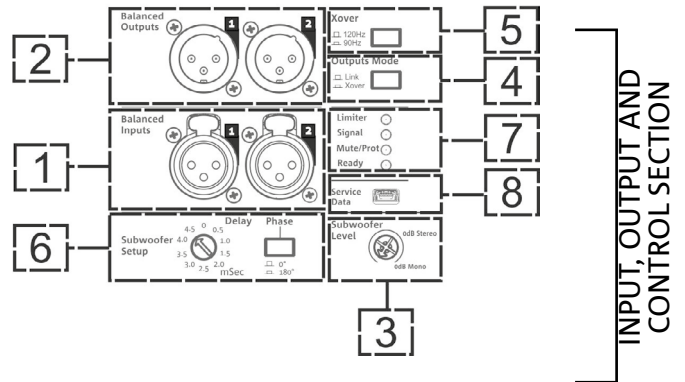
- SWK-18 kit
- DRK-10 and DRK-20 fly-bar
- S2 pole
- DCK-15, DPC-15, DAC 15, DPC-1000M, kit DCK-15, DCK-45 e DCK-45 TypeB cable kit

For any further information, please refer to the site www.dbtechnologies.com and to the relevant manuals of each individual accessory.



CHARACTERISTICS OF THE AMPLIFICATION AND CONTROL SECTION

The D-class next generation amplifier DIGIPRO G3 features a SMPS power supply section with a particularly efficient auto-range function. The system is noiseless, as it doesn't require a ventilation system. The system is controlled by a powerful DSP that makes it possible to readily and quickly configure the subwoofer in any usage context

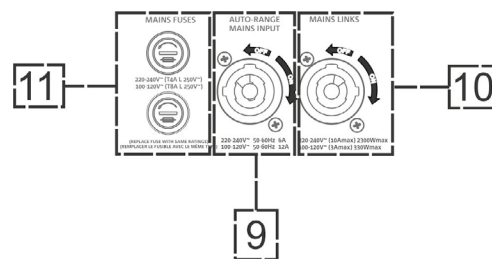
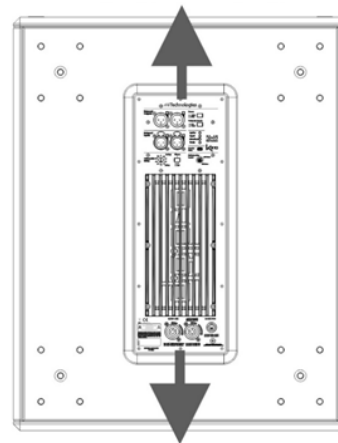


ATTENTION!

- Protect the module from humidity.
- Never try to open the amplifier.
- In case of malfunction, immediately cut off the power supply, by disconnecting the module from the mains, then contact an authorised repairman.

The DIGIPRO G3 panel consists of:

- Input, Output and Control section
- Power supply section



INPUT, OUTPUT AND CONTROL SECTION

1. BALANCED INPUTS

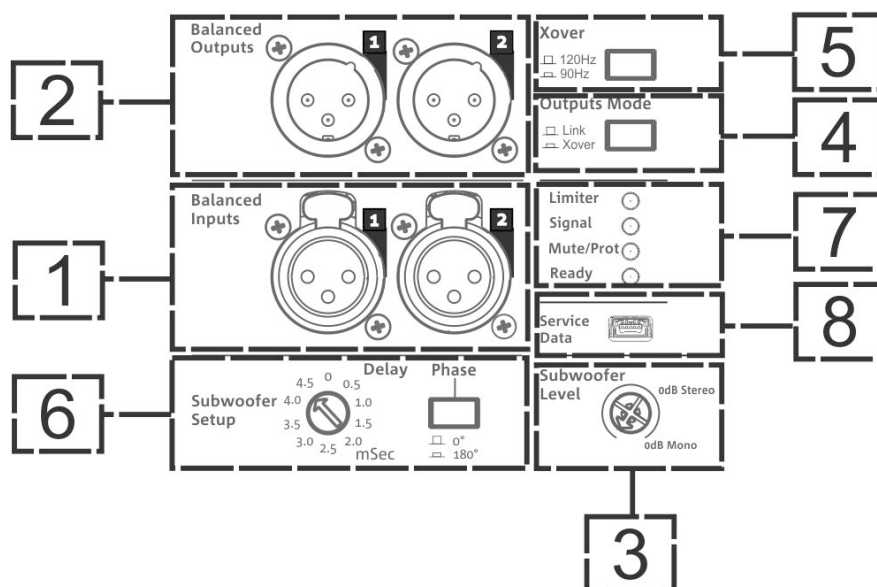
There are 2 inputs (mono or stereo configuration) for balanced cables with XLR connectors.

2. BALANCED OUTPUTS

There are 2 outputs (mono or stereo configuration) for balanced cables with XLR connectors.

3. SUBWOOFER LEVEL

Rotary which controls the output level. Set to 0 dB (mono or stereo) for common applications.



4. OUTPUTS MODE

Makes it possible to choose the type of filter. If “LINK” is selected, no filter is applied. If “XOVER” is selected, a filter is applied, at the frequency chosen with [5] “XOVER” switch.

5. “XOVER” SWITCH

This switch is used to select the crossover frequency (120 Hz, 90 Hz)

6. “SUBWOOFER SETUP” CONTROLS

Rotary “Delay” control to set the delay time in ms (e.g in an End-fire configuration), and a “Phase” button for phase inversion (e.g. in a Cardioid configuration).

7. WARNING LEDS

LED Limiter, Signal, Mute/Prot, Ready

In normal operation, Ready LED is steadily on, Signal LED starts blinking at the presence of the signal. For further information please check the table on the next page.

8. SERVICE DATA

The type-B mini USB port must only be used to update the product firmware For further information, please refer to the Web site <http://www.dbtechnologies.com> in section “[DOWNLOADS](#)” and to chapter [FIRMWARE UPDATE](#).

9. MAINS INPUT

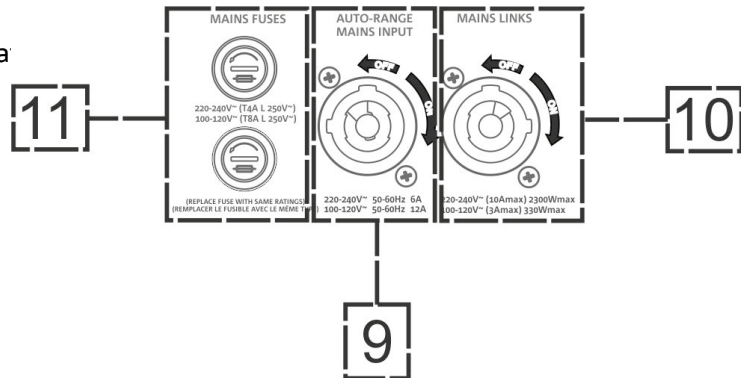
Power supply connector for cable equipped with powerCON connector.

10. MAINS LINK

Connector for power supply link. The nameplate shows the maximum and total current and power of a linked system

11. MAINS FUZE

Mains fuses housing



The table below shows a diagram summarising the LED behaviour during certain speaker operation stages.

LED TYPE	SPEAKER SWITCH-ON	NORMAL OPERATION	GENERIC WARNING	STOP DUE TO SPEAKER MALFUNCTION
LIMITER	OFF	OFF, IT STARTS BLINKING ONLY IN DISTORSION CASE	TEMPORARY BLINKING	ONGOING CYCLIC BLINKING
SIGNAL	OFF	BLINKING WITH SIGNAL	NORMAL INPUT AUDIO INDICATION	OFF
MUTE/ PROT	ON FOR A FEW SECONDS	OFF	TEMPORARY BLINKING	STEADILY ON
READY	OFF	STEADILY ON	STEADILY ON	OFF

2. FIRST SWITCH-ON

PACKAGE CONTENTS

The DVA KS20 package includes:

1. DVA KS20
2. Quick start and warranty/safety-related documents
3. Fuses to be installed if the system is to operate within the 100-120V range
4. Mains cable with powerCON connector

PRELIMINARY OPERATIONS

The DVA K5 built-in mechanical components installed on each speaker side are:

- A - PREDISPOSITIONS FOR M20 POLE MOUNTING
- B - PREDISPOSITIONS FOR DRK-10 AND DRK-20
- C - METAL HANDLES
- D - HOLES FOR WHEEL MOUNTING (SWK-18 kit)

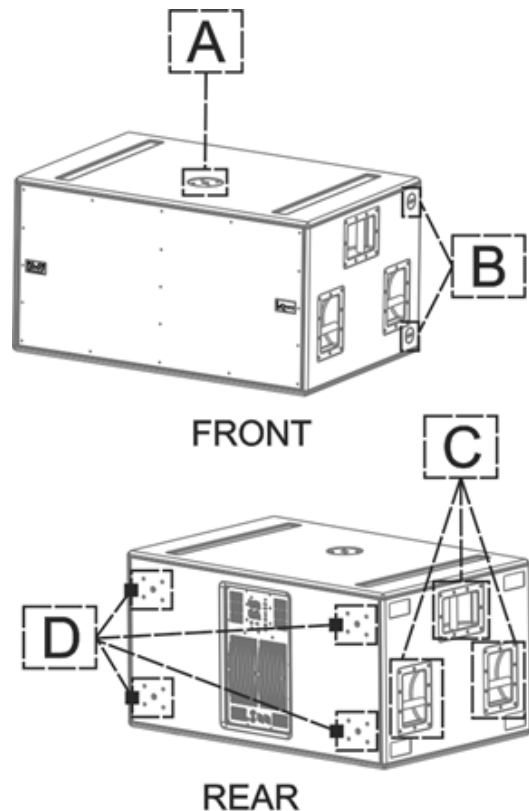
Before installing the equipment, when opening the package remember to:

- Remove the bag containing the fuses and the mains cable



ATTENTION!

- The speaker is supplied with two pre-installed fuses designed to operate within the 220-240 V range. Should it need to operate within the 100-120 V range:
 1. Disconnect all connections, including the power supply one.
 2. Wait for 5 minutes.
 3. Replace the fuses with the two included in the package for the 100-120 V range.
 4. Use only the supplied cable
- Only use cables equipped with high-quality connectors. Using cables equipped with poor-quality connectors might affect speaker operation.
- Never use the speaker for a prolonged time while the limiter LED is on or frequently blinking, indicating the equipment is running under excessive stress conditions



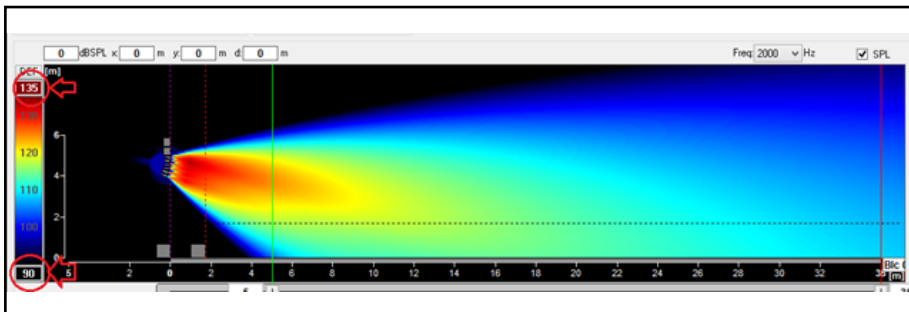
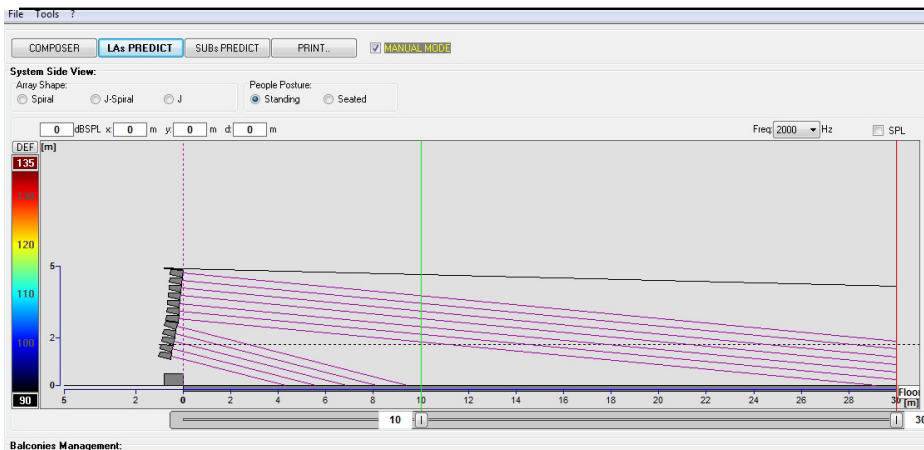
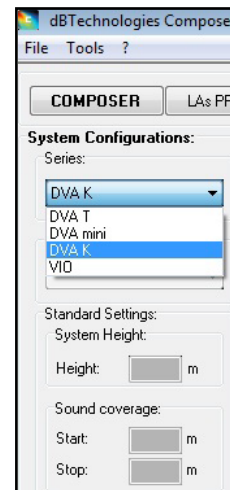
USING DBTECHNOLOGIES COMPOSER

The dBTechnologies Composer software, which can be downloaded for free from www.dbtechnologies.com, is a tool allowing users to properly design their audio system, recommended for all the equipment belonging to the DVA series. It makes it possible to optimize all of the acoustic solutions for which DVA KS20 subwoofers are used.

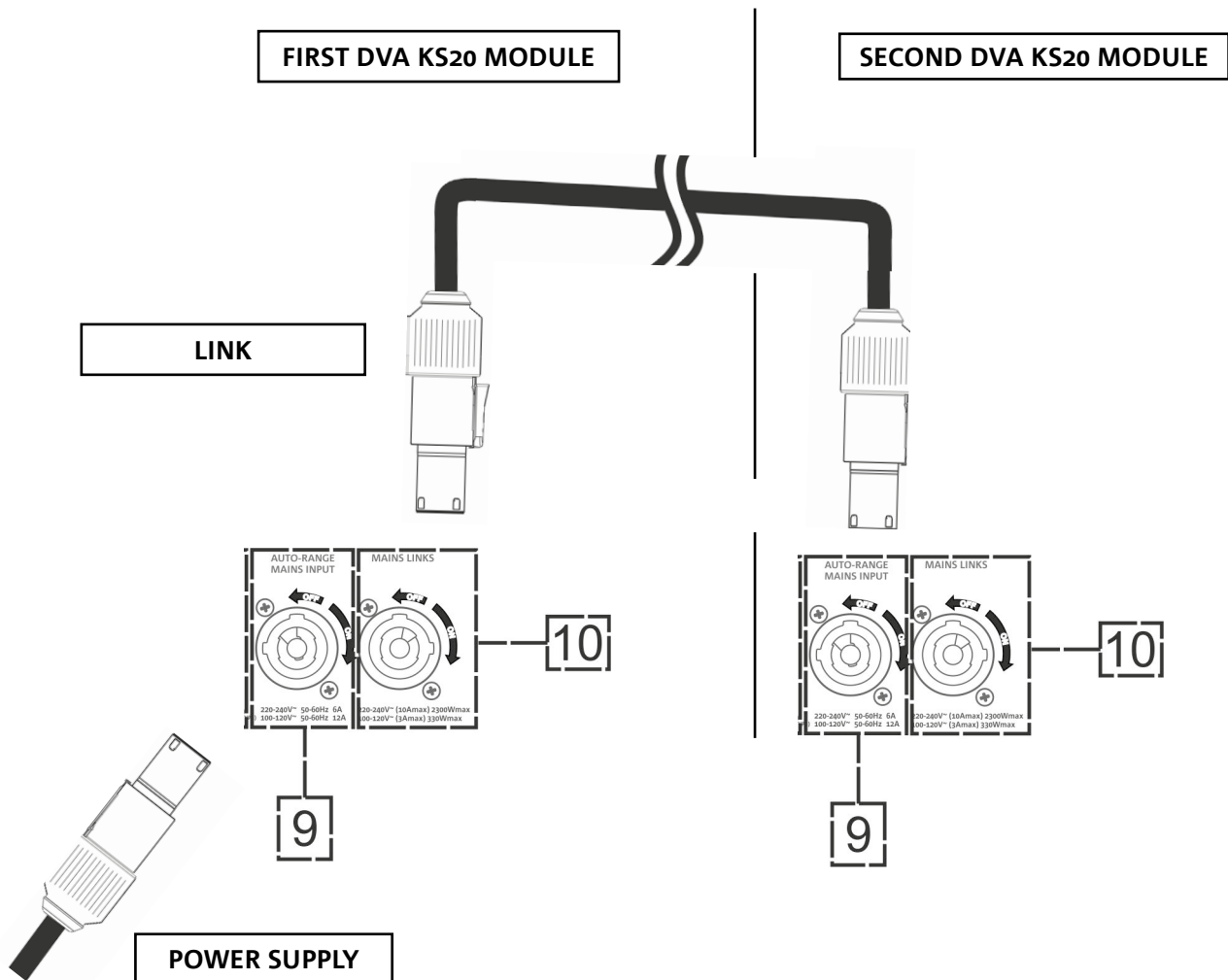
It proposes the optimum solution for the selected areas, specifying the line-array module angle required to obtain the proposed coverage.

It also makes it possible to effectively check the safe installation of the line-array modules, by simulating the static behaviour of the fly-bars.

For further information please refer to the **DOWNLOADS** section of www.dbtechnologies.com.



CONNECTING AND LINKING OF POWER SUPPLY BETWEEN 2 SUBS



- Connect the first module power supply to AUTO-RANGE MAINS INPUT (10). For this purpose, use the cable equipped with a powerCON connector (included in the supply).
- Link the power supply from the first to the second module, by connecting the MAINS LINKS OUTPUT (11) to the AUTO-RANGE MAINS INPUT (2), as shown in the figure.
- Repeat the operation (in case of more than 2 subwoofers) until all modules are connected (check the maximum number of power supply extensions in the technical specification section).



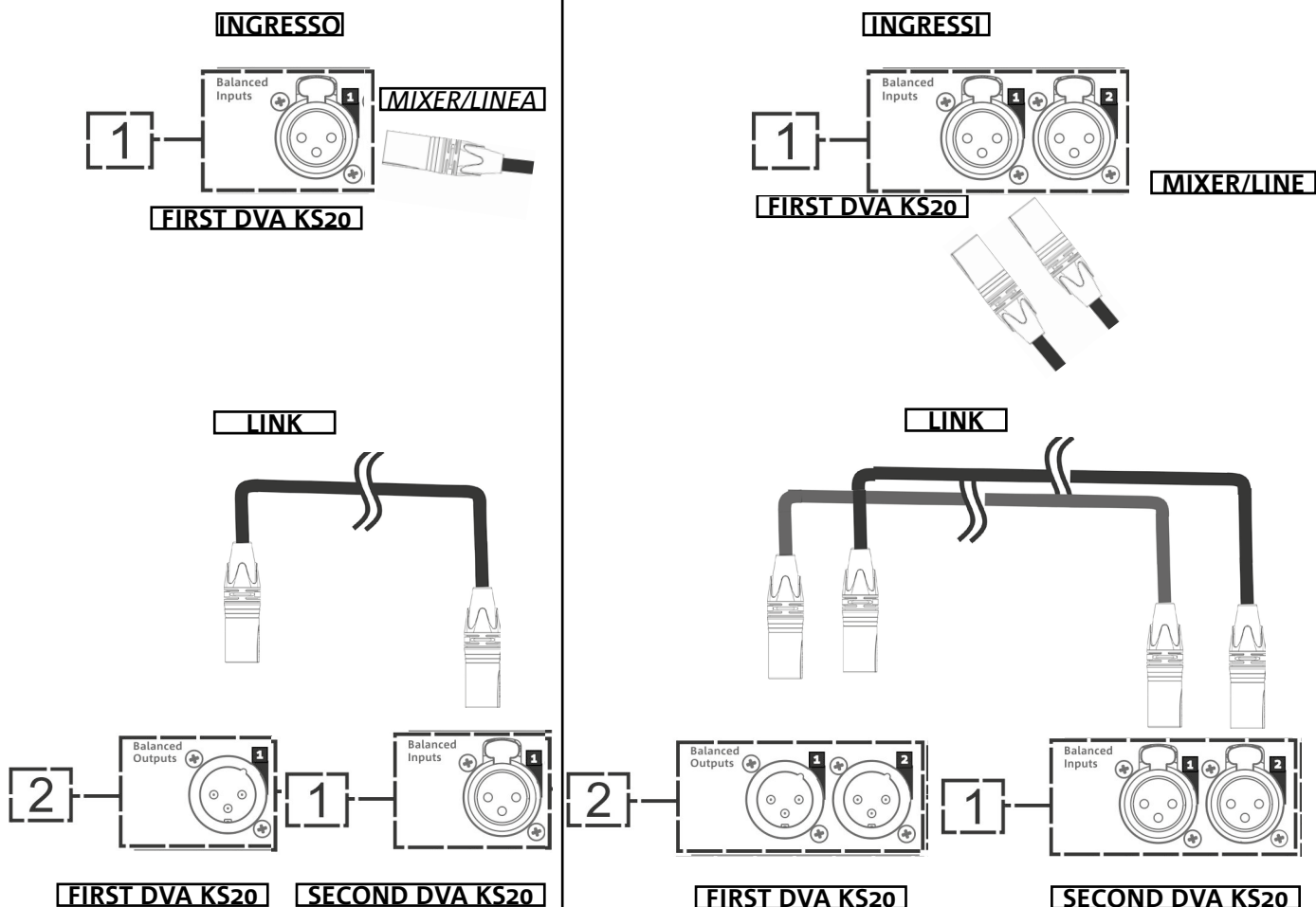
ATTENTION!

- The amplifier nameplate of the DVA KS20 module specifies the maximum and total current (and power) value of a multiple module system with extension connections.
- The cables must be properly sized; design, installation and testing of the system should be performed only by qualified personnel. AEB Industriale accepts no responsibility in the event of use of cables which are unsuitable, uncertified or incompatible with the proper system sizing or with the regulations in force in the country of use.

CONNECTING AND LINKING OF AUDIO SIGNAL BETWEEN 2 SUBS

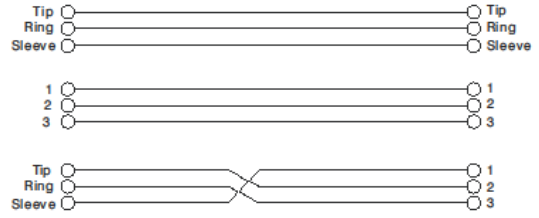
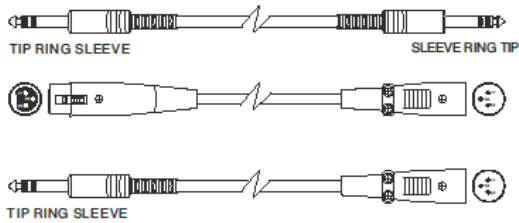
MONO CONFIGURATION

STEREO CONFIGURATION

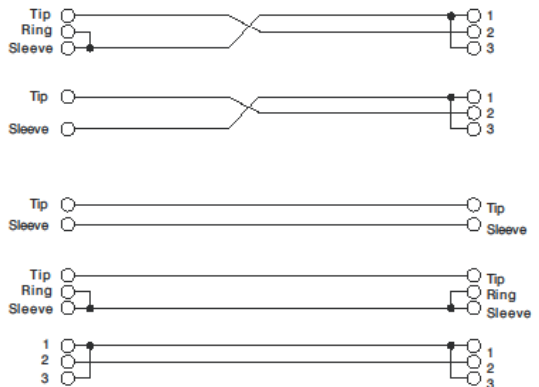
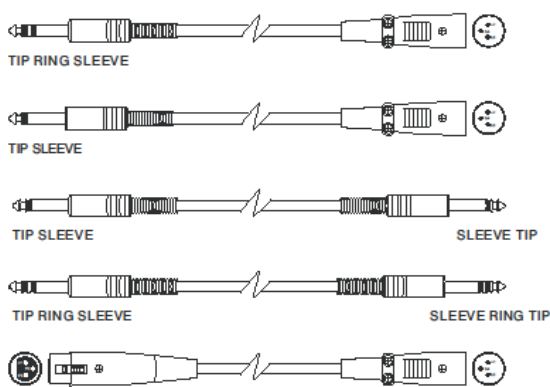


- It is necessary to use one or two cables in input and one or more cables for links, depending on the mono or stereo configuration needed, as shown. Use balanced cables with XLR connectors (not supplied). For further information about available cables, see the picture on p. 29
- Connect your MIXER/LINE source to the BALANCED INPUTS (1) of the first subwoofer.
- Link the first and the second subwoofer, connecting BALANCED OUTPUTS (2) of the first to BALANCED INPUTS (1) of the second one.
- Repeat the operation (in case of more than 2 subwoofers) to get the desired result.

• **Balanced**



• **Unbalanced**



CONFIGURATION AND OPTIMISATION

The DVA KS20, used alone, is a subwoofer characterised by its omnidirectional acoustic emission. This behaviour is clear at lower frequencies, but becomes less well-defined as the frequency increases.

When used in a line-array and when used with other subwoofers, a series of controls are needed to optimise the acoustic performance of the subwoofer and of the entire array.

The main controls available to the user on the control panel are Xover (crossover frequency), Delay (with a range of 0-4.5 ms and a resolution of 0.5 ms), and Phase (can be set to either 0° or 180°). For information on which settings to use in the various potential configurations (e.g. Cardioid, End-fire, line-array), refer to the DVA COMPOSER.

Before turning on the unit, make sure that the Subwoofer level is turned to 0 dB in the right position (stereo or mono according to the audio connections; for further details please refer to section). Then check that the powerCON cable is properly connected (for further details please refer to the related section) and turn on the upstream power supply.

3. INSTALLATION EXAMPLES

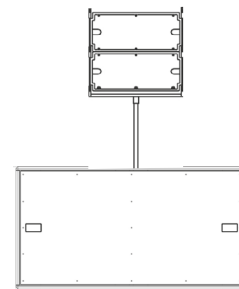


ATTENTION!

- Never use the handles or the subwoofer's built-in mounting holes to install the subwoofer in an improper manner (for example to drag it) or to hang it.

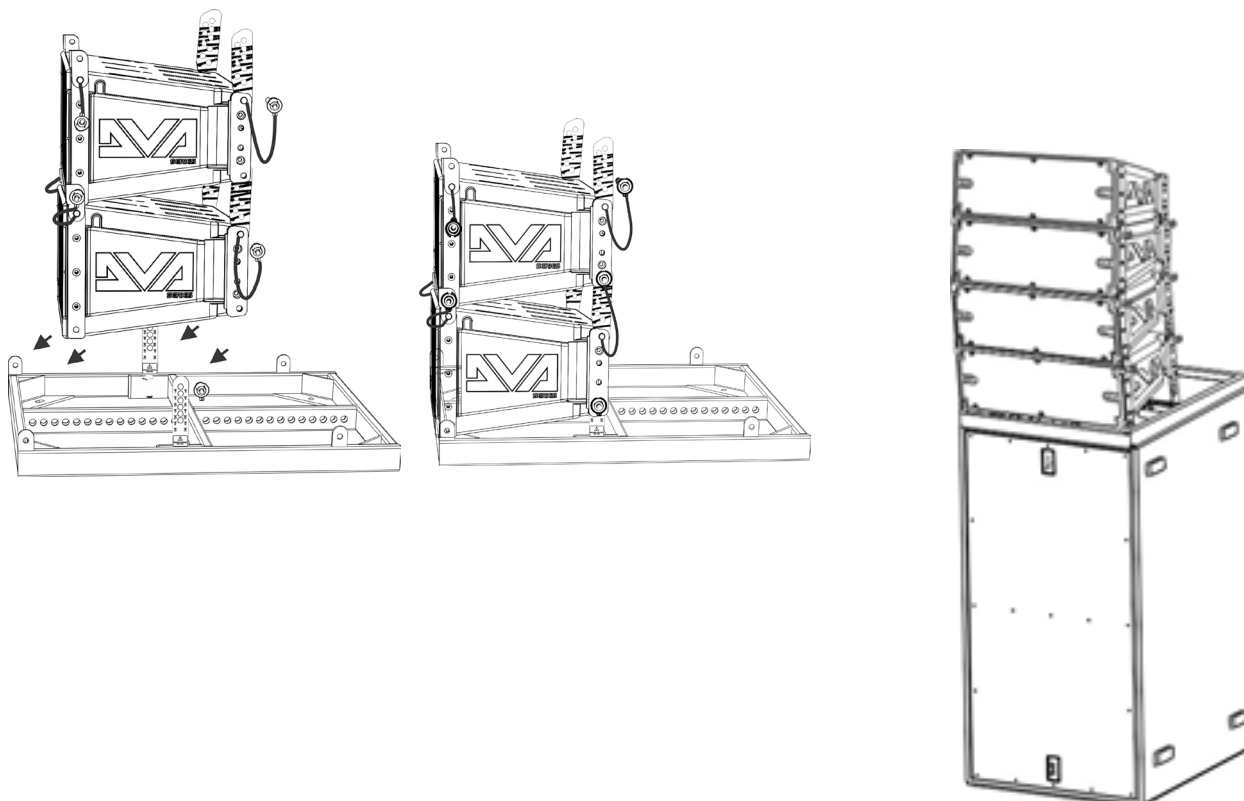
INSTALLATION ON A POLE WITH THE DVA K5

To install the DVA K5 on a DVA KS20 subwoofer, you must use a pole having a diameter of 35 mm. For this type of installation, the distance between the speaker base and the floor must not exceed 85 cm, and you can mount up to 2 DVA K5 modules. For this purpose you must use a DSA-4 accessory, and the downward inclination of the speakers must not exceed 5°.



STACKED DVA K5 INSTALLATION WITH A FLY-BAR

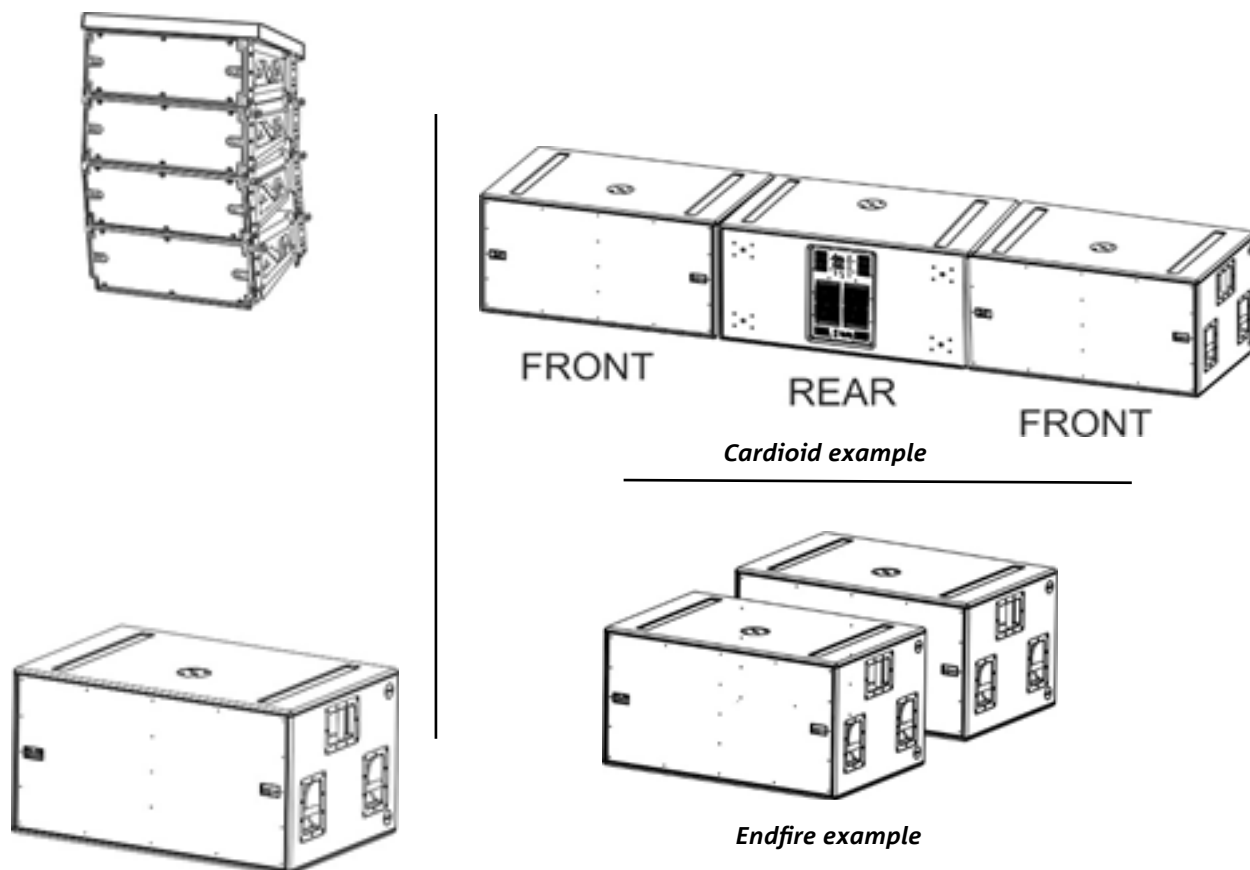
Stacked modules can be directly installed on a subwoofer, using a DRK-10/DRK-20 fly-bar. For further information please refer to the relevant manuals.



DIRECT INSTALLATION WITH DIFFERENT CONFIGURATIONS

DVA KS20 can be directly installed in different configurations. Choose always the correct values (mainly Delay and Phase) with the help of dBTechnologies Composer. Here are presented some examples (like one cardioid and endfire case).

The subwoofer can also be stacked, thanks to the mechanical predispositions on the cabinet. The lateral handles facilitates the movements and the positioning.



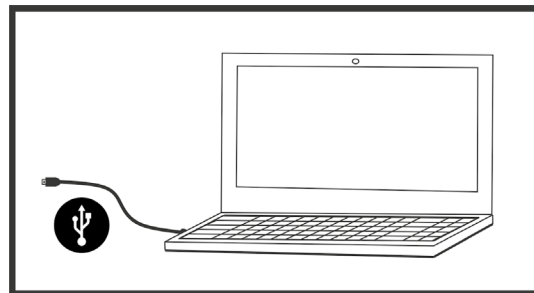
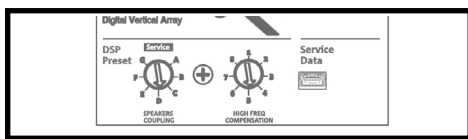
ATTENTION!

- Do not use the handles or the integrated holes of subwoofer to suspend, drag or improperly move the subwoofer. Do not climb on it.
- Install the unit on a flat and even surface; in any other case, you must use an additional safety fastener

For a safe use of accessories, check their functionality and integrity periodically before use. Accessories must be used by qualified personnel only! Make sure the installation is stable and safe, to avoid any hazard to people, animals and/or property. The user is responsible for checking the binding safety regulations and laws in force in the Country where the product is being used. When installing the product follow the instructions provided herein.

4. FIRMWARE UPDATES

IT IS very important to keep product firmware updated to the latest version to ensure full performance. Please check site <http://www.dbtechnologies.com> for updates under section “[DOWNLOADS](#)” periodically.



1. Download USB BURNER MANAGER from section “[SOFTWARE & CONTROLLER](#)” of the dBTechnologies site.
2. Download the .zip file with the last firmware from section “[DOWNLOADS](#)” for your product
3. Connect the product to the PC by means of a USB cable (not supplied) featuring the right connector detail is contained in section FEATURES OF THE AMPLIFIER AND CONTROL SECTIONS
4. In the top right corner of the USB BURNER MANAGER screen, select “File Opening”.
5. Select the firmware file you have downloaded previously (ensure that it is suitable for your operating system).
6. Follow the on-screen instructions.
7. Click UPDATE.

5. TROUBLESHOOTING

The subwoofer won't turn on:

1. Check that the power supply upstream of the system is working properly
2. Check that the power cord is properly plugged in
3. Check that the cables are not damaged

The subwoofer turns on but it doesn't output any sound:

1. Check that the input connections of the main audio signal and of the auxiliary one, if any, have been performed properly
2. Check that the cables in use are not damaged
3. Check that the mixer or the audio source are on and that they clearly indicate the presence of an output signal to the speaker.
4. Check that the "Subwoofer level" audio volume is set to 0 dB (mono or stereo configuration)

The subwoofer outputs a distorted sound:

1. Check that the "Xover", "Delay" and "Phase" controls are at the appropriate settings for the chosen configuration.
2. make sure that the Subwoofer level is turned to 0 dB in the right position (stereo or mono according to the audio connections (mono or stereo according to the audio connections)).
3. Check that the cables in use are not damaged; should that be the case, replace them (a damaged cable may result in signal loss or alteration).

6. TECHNICAL SPECIFICATIONS DVA KS20

GENERAL

Type:	Active semi horn-loaded subwoofer
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ACOUSTIC DATA

Frequency response [- 10 dB]:	41 -120 Hz
LF:	2x18"
LF voice coil:	4"
Crossover frequency:	90 / 120 Hz (selectable)

AMPLIFIER

Type:	Digipro® G3
Amplification class:	D class
Amplification power (Peak)	3600 W
Amplification power (RMS):	1800 W
Power supply connector:	(PowerCON In + Out)
Cooling technique:	Convection

USER INTERFACE

Control interface:	Subwoofer level, Subwoofer setup, Xover, Outputs mode
LEDs:	Limiter, Signal, Mute/prot, Ready

PROCESSOR

Internal controller:	DSP 28/56 bit/48 kHz
Limiter:	Rms, Peak, Termico

USER INTERFACE

Control interface:	Subwoofer level, Subwoofer setup, Xover, Outputs mode
LEDs:	Limiter, Signal, Mute/prot, Ready

INPUTS AND OUTPUTS

Power supply inputs and links	PowerCON In/Link
Audio inputs:	2x XLR IN, balanced
USB:	1x USB MINI, type B
Audio outputs:	2x XLR link OUT, balanced

POWER SUPPLY SPECIFICATIONS

Draw at 1/8 of full power in average use conditions (*):	2,45 A / 290 W (230 V) - 4 A / 290 W (115 V)
Draw at 1/3 of full power in maximum use conditions (**):	5,25 A / 680 W (230 V) - 8,57A / 660 W (115 V)
Draw with speaker turned on without signal (idle): :	41 W
Inrush current:	88,67 A
Total current and power allowed in daisy-chain configuration:	10 A / 2300 W (230 V) - 3 A / 330 W (115 V)

* **INSTALLER NOTES:** The values refer to 1/8 of full power, in average operating conditions (music program with infrequent or no clipping). It is recommended to consider them the minimum sizing values for any type of configuration.

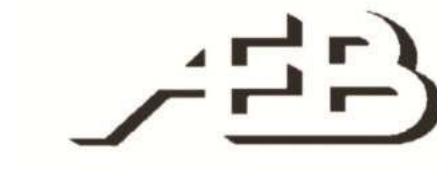
** **INSTALLER NOTES:** The values refer to 1/3 of full power, in heavy operating conditions (music program with frequent clipping or activation of the limiter). We recommend sizing according to these values in case of professional installations and tours.

DIMENSIONS

Material:	multi-layer wood
Grille:	CNC machining
Handles	built-in

Connecting points:	built into the housing
Ready for pole mounting	M20
Width:	1100 mm (43.31 inch.)
Height:	580 mm (22.83 inch.)
Depth:	720 mm (28.53 inch.)
Weight:	84 kg (185.19 lbs)

The characteristics, specifications and appearance of the products are subject to change without warning. dBTechnologies reserves the right to make any change or improvement to product design or manufacturing without undertaking any obligation to also change or improve the previously manufactured products.



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