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dB TECHNOLOGIES VIO-X310 Professional Active 3 Way Loudspeaker User Manual

Contents

dBTechnologies

dB TECHNOLOGIES VIO-X310 Professional Active 3 Way Loudspeaker

Product Information

The Professional Active 3-Way Loudspeaker is designed and suitable for operation in residential environments. It is classified as class A equipment according to the standards EN 55032 and 55035. The features, specifications, and appearance of the product are subject to change without notice. dBTechnologies reserves the right to make changes or improvements in design or manufacturing without assuming any obligation to change or improve previously manufactured products.

Product Usage Instructions

1. Only use the accessories and configurations described in this manual.
2. Observe the instructions given in the manuals for the accessories.
3. Ensure that the amplifier cooling fins at the back are not obstructed. In case of overheating, the audio volume will gradually be reduced until the module is thermally stable. The level will be automatically restored once the correct operating temperature is reached.
4. Periodically check the integrity and functionality of the accessories and technical equipment for safe installation.
5. Never apply a load that exceeds the working load limits of any rigging components or equipment presented

here.

6. Design, calculation, installation, testing, and maintenance of suspension and stack systems for audio equipment should only be performed by qualified and authorized personnel.

7. AEB Industriale s.r.l. disclaims any responsibility for improper installations in the absence of safety requirements.

8. Follow the important safety instructions:
   - Read these instructions.
   - Keep these instructions.
   - Heed all warnings.
   - Follow all instructions.
   - Do not use this apparatus near water.
   - Clean only with a dry cloth.
   - Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
   - Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
   - Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two prongs, one wider than the other. A grounding-type plug has two blades and a third grounding prong.

9. Additional safety instructions can be found in the manual.

EMI CLASSIFICATION

According to the standards EN 55032 and 55035 this is a class A equipment, designed and suitable to operate in residential environments.

FCC CLASS A STATEMENT ACCORDING TO TITLE 47, PART 15, SUBPART B, §15.105
This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING: Make sure that the loudspeaker is securely installed in a stable position to avoid any injuries or damages to persons or properties. For safety reasons do not place one loudspeaker on top of another without proper fastening systems. Before hanging the loudspeaker check all the components for damages, deformations, missing or damaged parts that may compromise safety during installation. If you use the loudspeakers outdoor avoid spots exposed to bad weather conditions. Contact dB Technologies for accessories to be used with speakers. dBTech-nologies will not accept any responsibility for damages caused by inappropriate accessories or additional devices.

Features, specification and appearance of products are subject to change without notice. dBTechnologies reserves the right to make changes or improvements in design or manufacturing without assuming any obligation to change or improve products previously manufactured.

WARNING
Only expert personnel may use the product and its accessories! To prevent hazards to people, animals and/or objects, make sure that the installation is stable and secure. Comply with the safety regulations and laws in force in the country in which you use the product. For safe use, periodically check that all parts are in good working condition before use. Only authorised personnel may carry out de-sign, calculations, installation, testing and maintenance of professional flown or stacked audio systems. AEB Industriale shall not be liable for improper installation carried out without adequate safety measures. Never suspend the speakers from the handles!

Only use the accessories and configurations described in this manual, and proceed in accordance with the instructions given in the manuals for the accessories. Do not obstruct the amplifier cooling fins at the back. In the event of overheating, the audio volume is gra-dually reduced until the module is thermally stable. The level is automatically restored on reaching the correct operating temperature.

Do not attempt to open the amplifier. In the event of malfunction, immediately turn off the power, disconnect the

unit from the mains and contact an authorised service centre. Only use the power cable provided. The USB SERVICE DATA connection is to be used exclusively for upda-ting the product's firmware; do not connect any other USB device to the unit to avoid the risk of damage and malfunction. Do not use the monitor for a prolonged period with the limiter LED steadily lit or flashing as this indicates operation under stress with excessive distortion. Check periodically the integrity and the functionality of the accessories and the technical equipments for a safe installation. user should never apply a load that exceeds the working load limits of any rigging components or equipment here presented. design, calculation, installation, testing and maintanance of suspension and stack systems for audio equipment must be performed only by qualified and authorized personnel.

AEB Industriale s.r.l. denies any and all responsibility for improper installations, in the absence of safety requirements.

IMPORTANT SAFETY INSTRUCIONS

1. Read these instructions

2. Keep these instructions.

3. Heed all warnings.

4. Follow all instructions.

5. Do not use this apparatus near water.

6. Clean only with dry cloth.

7. Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

8. Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.

9. Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wide blade or the third prong are provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

10. Protect the power cord from being walked on or pinched particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.

11. Only use attachments/accessories specified by the manufacturer.

12. Use only with the cart, stand tripod, bracket, or table specified by the manufacturer, or sold with the apparatus. When a cart is used, use caution, when moving the cart/apparatus combi- nation to avoid injury from tip-over.

13. Unplug this apparatus during lightning storms or when unused for long periods of time.

14. Refer all servicing to qualified service personnel. Servicing is required when the apparatus has been dam-aged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

ADDITIONAL SAFETY INSTRUCTIONS

- No naked flame sources, such as lighted candles, should be placed on the apparatus

- Do not use the apparatus in tropical climates

GENERAL INFORMATION

WELCOME!
Thanks for purchasing a product that was designed and developed in Italy by dBTechnologies! This professional speaker embodies years of experience and innovation in the field of sound reproduction, with the use of cutting

edge solutions in the fields of acoustics, electronics and materials research.

INTRODUCTORY OVERVIEW

VIO X310 is a highly versatile 3-way active speaker of the point source type. Its small size and weight and the built-in handles make it easy to transport. It has built-in mechanical devices on the four sides for horizontal and vertical mounting with special accessories.
The low frequencies are handled by the dual 10" woofer (2.5" V.C.), while the MF-HF coaxial driver is the same as that used on the VIO L1610 line array system. These components ensure extremely detailed and faithful reproduction over the whole audible spectrum, especially in the most critical part, the mid-frequency range. The main characteristics of this VIO X310 are:

- quick and easy installation
- easy to transport
- great versatility
- newly designed internal amplifier
- high sound powers
- rotatable horn

USER INFORMATION

To use your VIO X310 speaker in the best way, we recommend that you:

- read the Quick Start manual included in the package and all of this User Manual, and keep them throughout the entire life of the product.
- register the product in the "SUPPORT" section at the http://www.dbtechnologies.com website.
- download and install the latest version of the firmware from the "DOWNLOADS" section of the http://www. dbtechnologies.com website (see the UPDATING THE FIRMWARE chapter).
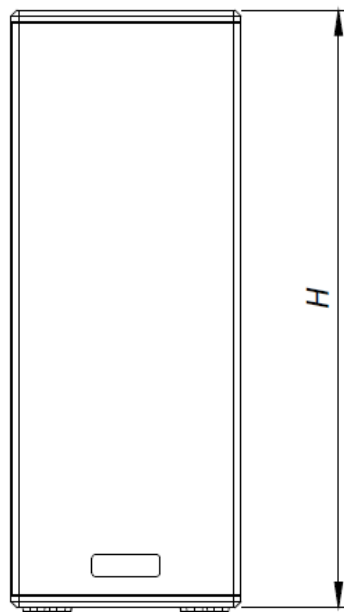- keep proof of purchase and the WARRANTY (User manual "section 2").

MECHANICAL AND ACOUSTIC FEATURES

DIMENSIONS AND WEIGHT
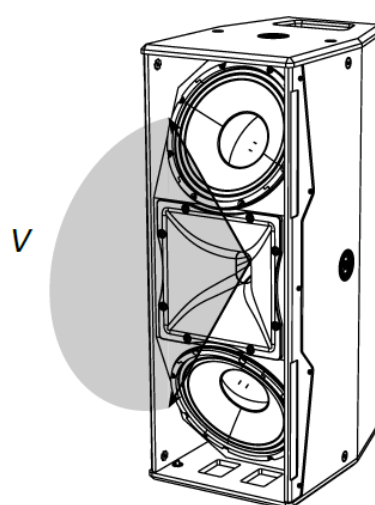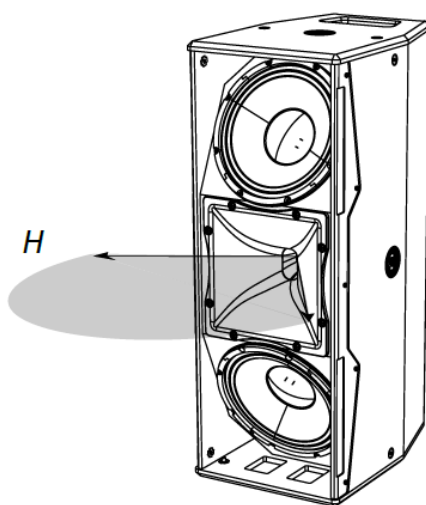The VIO X310 speaker has been designed with particular attention to optimising its weight and overall size.
It weighs 28 kg, and its dimensions are:
300 mm (W) x 780 (H) x 430 mm (D).
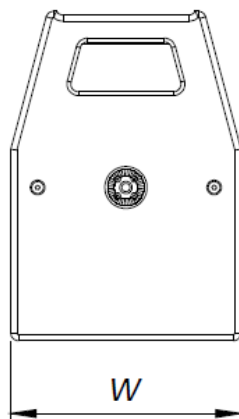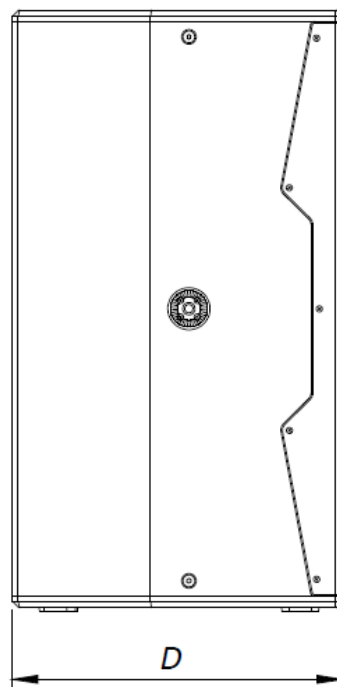
ACOUSTIC COVERAGE

As shown in the figure, the VIO X310 has a horizontal coverage (H) of 90° and vertical coverage (V) of 40°. The horn is rotatable.
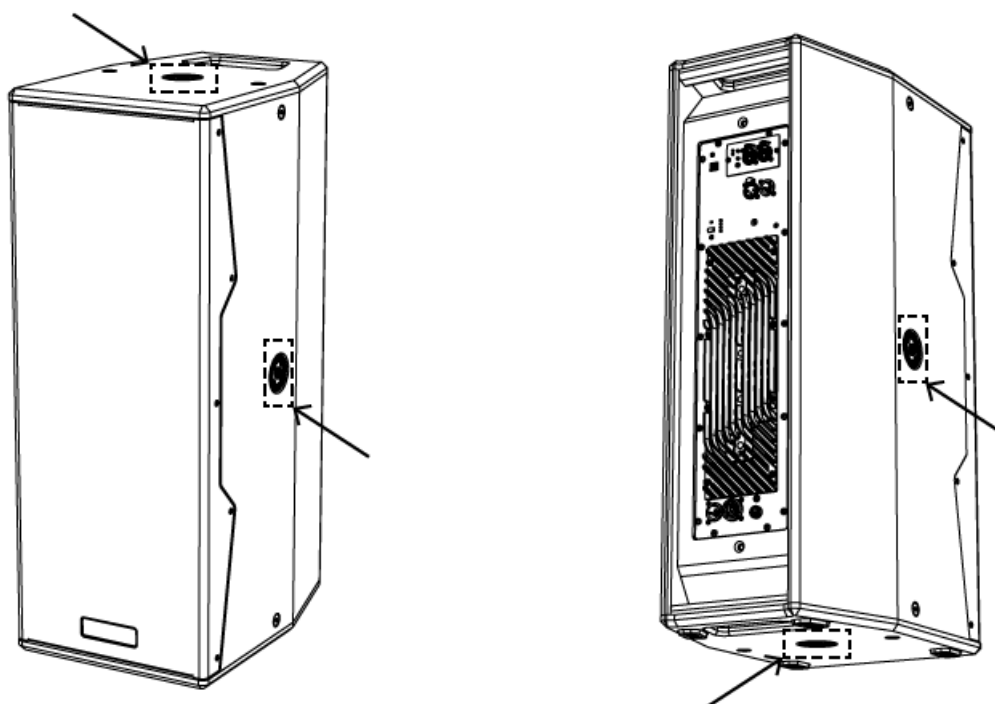

MECHANICAL FEATURES

There are two handles at the rear for easy transport.

Speaker ergonomics and quick installation (flown or stacked) are ensured by:
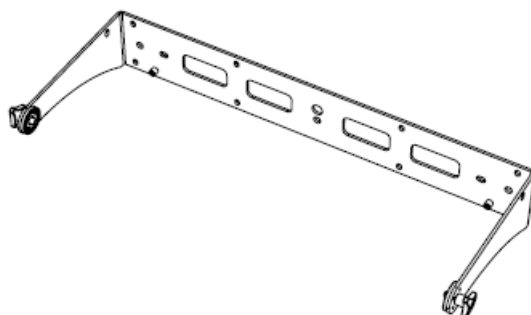
- 4 mechanical devices at the sides for fastening with HB-3X10 and VB-3X10 accessories
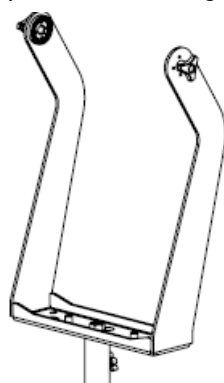
ACCESSORIES

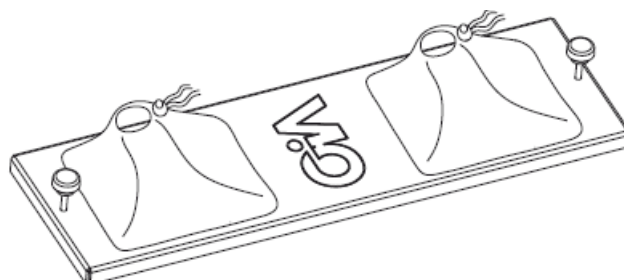The following accessories are provided for transporting and quickly installing the VIO X310 safely:

- HB-3X10, bracket for horizontal or vertical wall or suspended mounting.

- VB-3X10, bracket for vertical pole, stand or suspended mounting.

- RC-X3, rain-proof protection for the amplifier section.

- TC-VIOX310, transport cover.
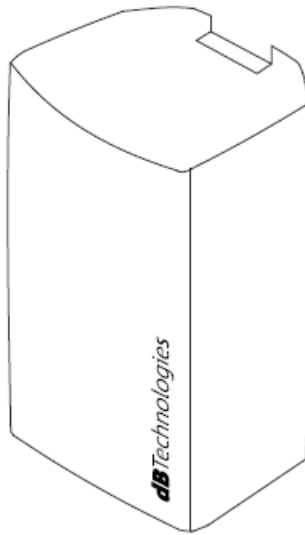
AMPLIFIER AND CONTROL SECTION FEATURES
The new generation Digipro G4® Class D digital amplifier is the heart of the VIO X310 speaker. Totally silent, it delivers amplification power of 1400 W RMS.
All the inputs and controls are grouped together on the preamp panel.
The connection panel features:
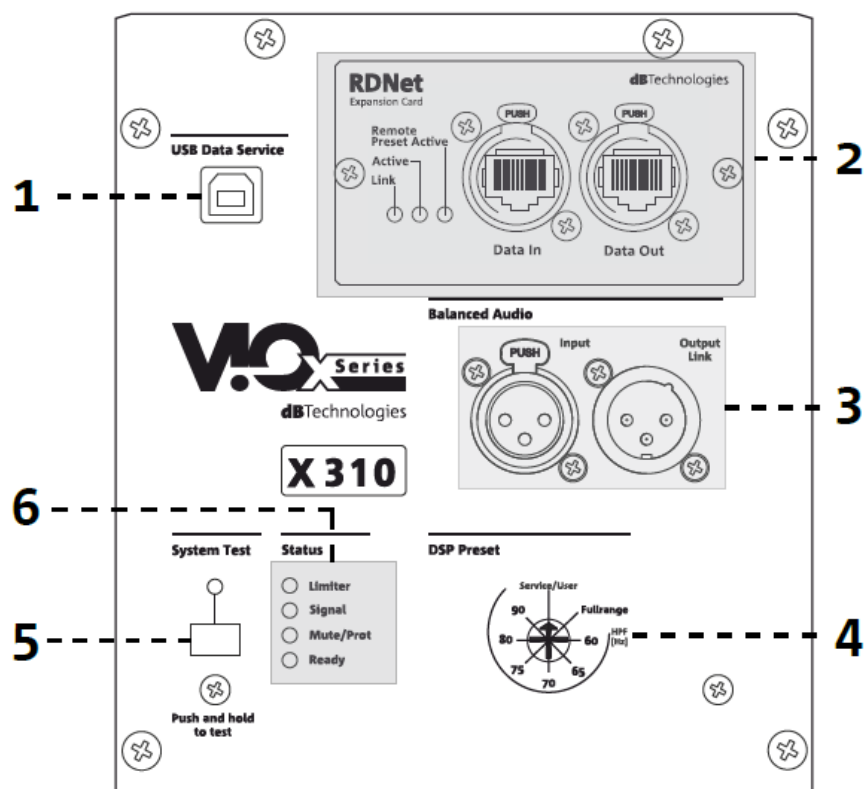
- Input, Output and Control section
- Power supply section

CAUTION!

- Protect the unit from moisture.
- Do not attempt to open the amplifier.
- In the event of malfunction, immediately turn off the power, disconnect the unit from the mains and contact an authorised service centre.
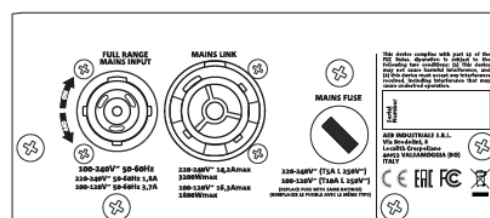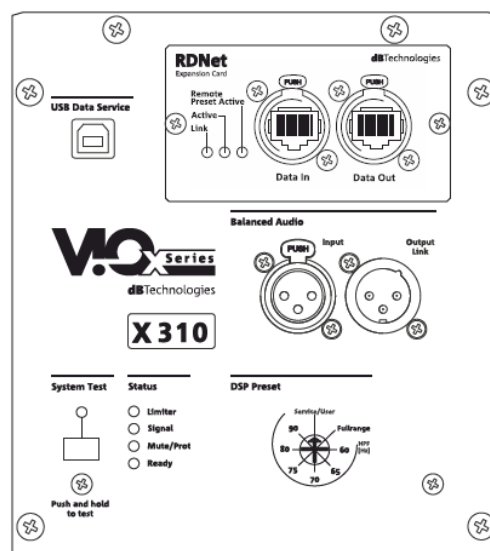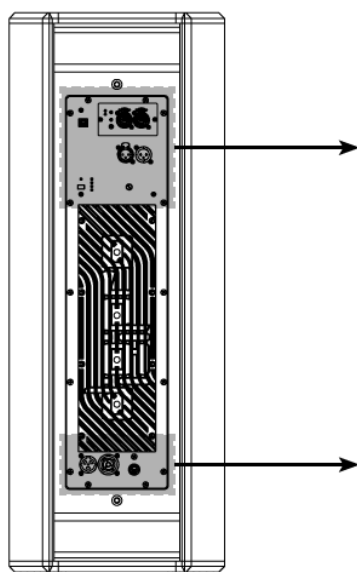
INPUT, OUTPUT AND CONTROL SECTION

1. **USB SERVICE DATA**

   Using this standard type B USB port, you can update the product's firmware using a PC and USB BURNER
   MANAGER. For further information, refer to the "DOWNLOADS" section of the http://www. dbtechnologies.com

website and the "UPDATING THE FIRMWARE" chapter.

2. **RDnet NETWORK CONNECTION INPUT AND LINKING, RDNet STATUS LEDs**

Section compatible with network cables fitted with etherCON/RJ45 connectors.

In particular:

- "Data In" is used to connect the network signal from a device such as RDNet Control 2 or Control 8, or from the Data Out port of another RDNet device
- "Data Out" is used to link the network to other devices in a daisy-chain configuration.

  The LEDs indicate the network (RDNet) operating status of the monitor.

  In particular:

- Link" illuminates to indicate that the RDNet network is active and has recognised the device
- "Active" flashes to indicate the presence of data traffic
- "Remote Preset Active" warns that all local controls on the amplifier panel are bypassed by the RDNet remote control or by a "User" memory, which can be loaded by pressing the "User" button

3. **AUDIO INPUT AND LINKING ("Balanced audio")**

Input and output compatible with balanced XLR cables.

In particular:

- "Input" is used to connect the audio signal from an audio device;
- "Output Link" is used to link the signal to other speakers in a daisy-chain configuration.

4. **DSP Preset**

Turning this control selects the high pass filter cut-off frequency from the following values: 60, 65, 70, 75, 80, 90 Hz. In the Fullrange position, the high-pass filter has no effect. The Service/User position is used for the firmware update status or to recall a USER setting (see the AURORA Net manual). See also the UPDATING THE FIRMWARE section.

5. **SYSTEM TEST:**

Carries out a test using a sweep signal (generated by the amplifier) to check that the acoustic components of the speaker are in good working condition. This test should not be considered exhaustive, but just a first troubleshooting check. For more reliable results, be sure to test under the best possible conditions, without obstructing the front of the speaker, and with the speaker free of any covers in front of the grille.

6. **STATUS LED Main**

The LEDs provide an immediate indication of the speaker status, in accordance with the logic summarised on the next page:

V!O x310	Limiter 🔴	Signal 🟢	Status 🟡	On 🟢
Power up	OFF	OFF	STEADILY LIT FOR A FEW SECONDS	OFF
Use	COMPRESSION LIMITER STATUS	SIGNAL OUTPUT STATUS	OFF	STEADILY LIT
Partial malfunction	ACTIVE	ACTIVE	CYCLIC FLASHING	STEADILY LIT
Total malfunction	CYCLIC FLASHING	OFF	STEADILY LIT	OFF

POWER SUPPLY SECTION

7. **"MAINS INPUT" POWER SUPPLY CONNECTOR**

Compatible with powerCON TRUE1® connectors. Full-range power supply.

8. **"MAINS LINK" POWER SUPPLY LINK**

Compatible with powerCON TRUE1® connectors to link the power supply to other modules. To find out how many modules can be connected in a linked system, refer to the "CONNECTIONS" section in this manual.

9. **MAINS FUSE**

Mains fuse holder.
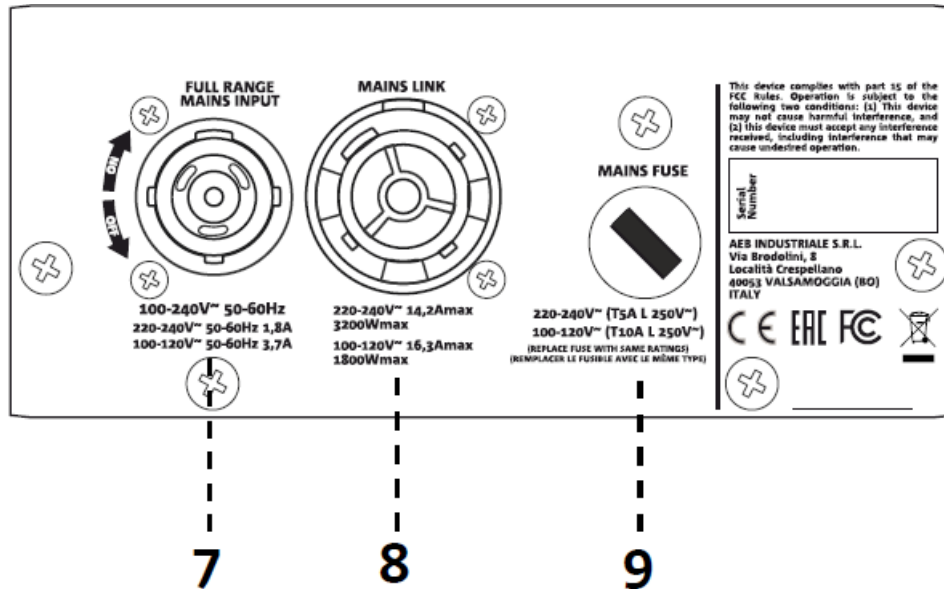
CAUTION!

- Only use the power cable provided or other dBTechnologies power cables.
- The USB SERVICE DATA connection is to be used exclusively for updating the product's firmware; do not connect any other USB device to the unit to avoid the risk of damage and malfunction.
- Do not use the monitor for a prolonged period with the limiter LED steadily lit or flashing as this indicates operation under stress with excessive distortion.

CONNECTIONS

CONNECTING AND LINKING THE POWER SUPPLY

On the VIO X310, you can link the power supply from the first speaker to the next, up to a total of 8 (7+1) in countries with a 220–240Vac mains supply, and up to 5 (4+1) in countries with a 100–120Vac mains supply.
To supply power, simply connect the power cable provided to the MAINS INPUT on the first speaker and connect a second cable with suitable connectors (optional) from the MAINS LINK output to the MAINS INPUT of the next speaker. Repeat the connection to supply up to the maximum permissible current specified on the MAINS LINK connector of the first speaker.
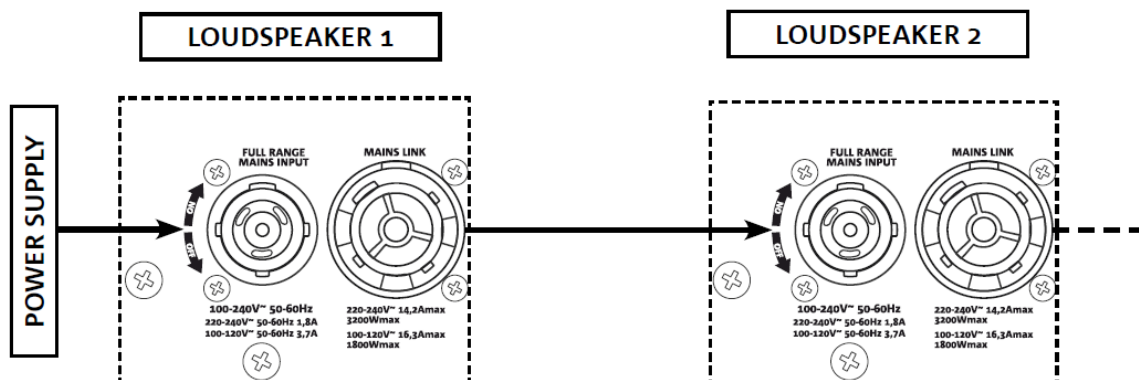
### CONNECTING AND LINKING THE AUDIO SIGNAL

When connecting the system audio signal, connect the sound source to the "INPUT" of the first speaker first of all. Then connect a balanced XLR cable from the "OUTPUT LINK" of the first monitor to the "INPUT" of the second, and so on.

CONNECTING AND LINKING THE RDNET SIGNAL

To enable remote control, connect the Data Input of the first speaker to the hardware interface (RDNet Control 2 or RDNet Control 8) using cables fitted with etherCON connectors. Then connect the Data Output of the first

speaker to the Data Input of the second, and so on. Power up the speakers and make a "GoOnline" request in the AURORA NET software; the "Link" LEDs will confirm that they are connected.
The "Active" LEDs will start flashing to indicate that there is data traffic.
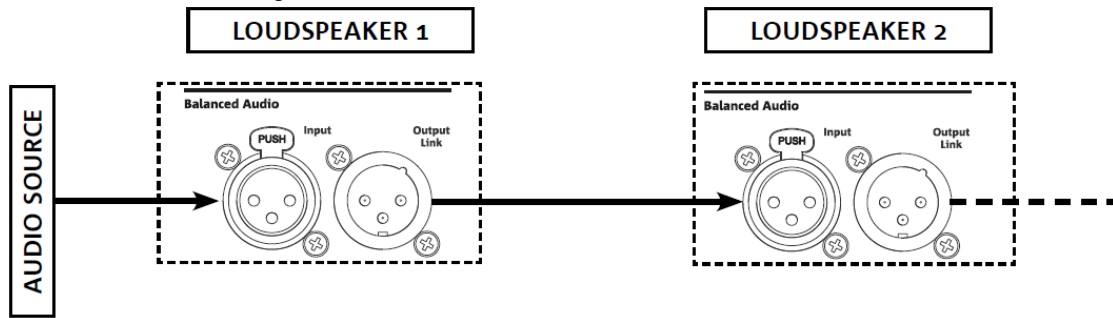

REMOTE CONTROL

The AURORA NET software lets you manage several parameters of the VIO X310 speaker in real time. In detail:

- Monitor the input and output signals
- View if there is audio compression on the output signal and acoustic components
- Attenuate the input signal
- MUTE the driver, midrange and woofer separately
- SOLO the driver, midrange and woofer separately
- Monitor the temperature of the amplifier
- Select the high pass filter cut-off frequency
- Save settings as presets for subsequent remote recall
- Equalise the speaker
- Add delay
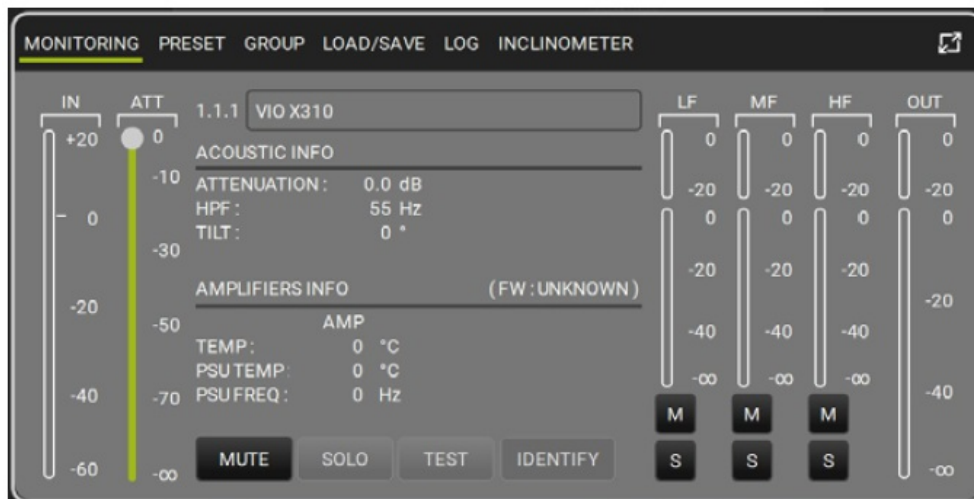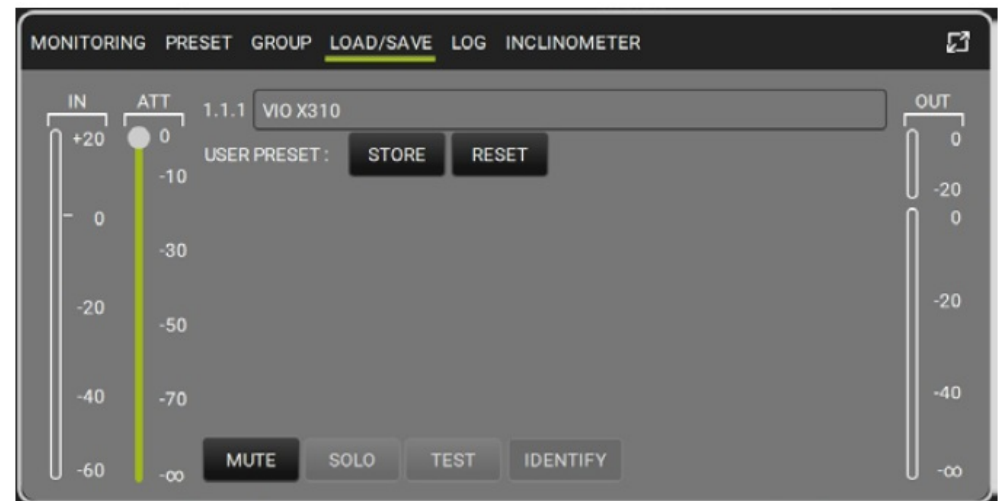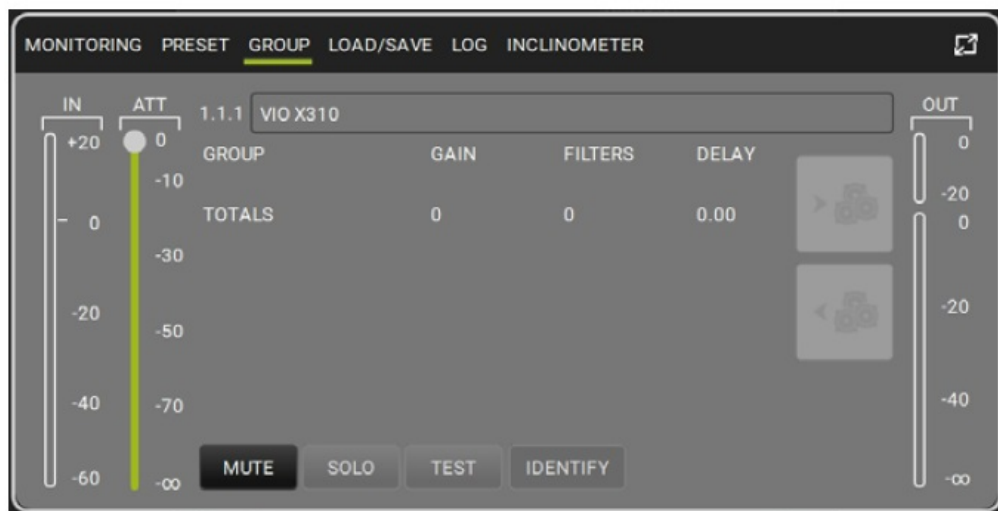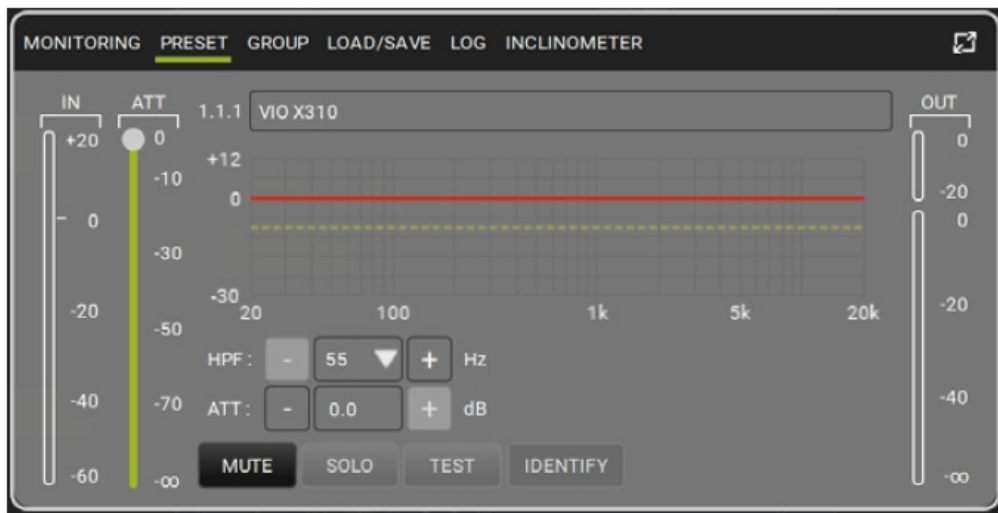
INSTALLATION AND CONFIGURATION

PACKAGE CONTENTS

On opening the VIO X310 monitor package, check that no items are missing.
The package contains:

- power cable with POWERCON® TRUE1 connector
- VIO X310 speaker

- quick start manual and warranty documentation

CAUTION!
Only expert personnel may use the product and its accessories! To prevent hazards to people, animals and/or objects, make sure that the installation is stable and secure. Comply with the safety regulations and laws in force in the country in which you use the product. For safe use, periodically check that all parts are in good working condition before use. Only authorised personnel may carry out design, calculations, installation, testing and maintenance of professional flown or stacked audio systems. AEB Industriale shall not be liable for improper installation carried out without adequate safety measures.

This section illustrates some installation examples. Also consult the instructions for the accessories, as well as any prescriptions reported on the product labels.

MOUNTING

WALL MOUNTING
The speaker can be wall mounted horizontally or vertically using the optional HB-3X10 bracket. For further information, refer to the specific manual for the accessory.
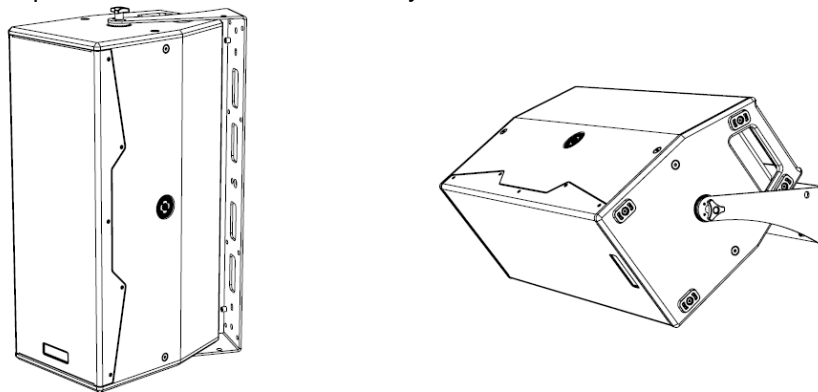

CAUTION!

- Never hang the subwoofer from the handles on the sides! Always use brackets and accessories approved by the manufacturer
- If the speaker is to be used outdoors, we recommend that the system is securely anchored to prevent movement due to wind or atmospheric agents

POLE MOUNTING
The speaker can be mounted either vertically (using the optional VB-3X10 bracket) or horizontally (using the optional HB-3X10 bracket) on the optional standard tripod stand with a 35 mm diameter pole. In either case, the maximum permissible height of the speaker base from the floor is 120 cm; additional fastening is required for higher heights.

For further information, refer to the specific manual for the accessory.
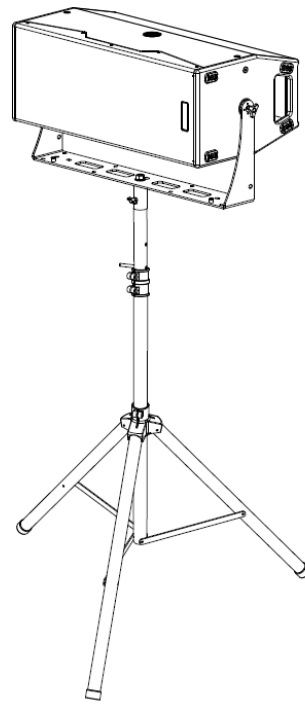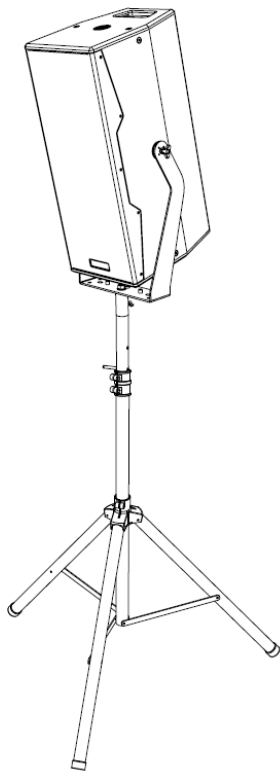
FLOWN MOUNTING

The speaker can be suspended from a truss adapter using the HB-3X10 and VB-3X10 accessories and Aliscaff equipment (not supplied). For further information, refer to the specific manual for the accessory.
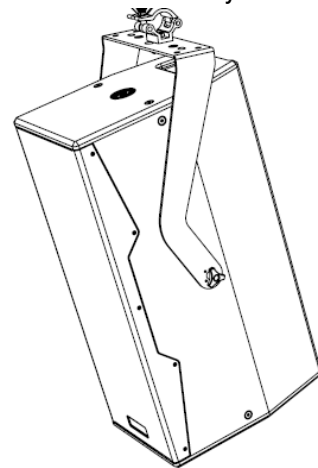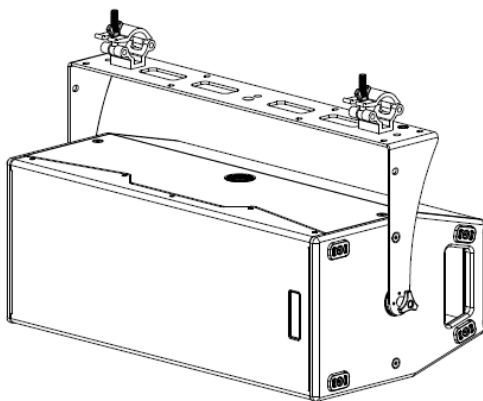
UPDATING THE FIRMWARE

It is very important to keep the product firmware updated to ensure full functionality. Periodically check the "DOWNLOADS" section of the **http://www.dbtechnologies.com** website.

1. Download and install the USB BURNER MANAGER onto your computer from the "SOFTWARE & CONTROLLER" section.
2. Download the .zip file of the latest firmware for your product from the "DOWNLOADS" section.
3. Connect the product to the PC using a USB cable (not supplied) with the correct connector type (see this detail in the "AMPLIFIER AND CONTROL SECTION FEATURES" chapter)
4. Select "Open File" at the top right of the USB BURNER MANAGER screen.
5. Select the previously downloaded firmware file.
6. Follow the instructions shown on the screen.
7. Click "UPDATE".

You can also update the product firmware from the Firmware Update section of the AURORA NET software.

TROUBLESHOOTING

The speaker does not power up:

1. Check that the system is connected to a working power supply.
2. Check that the power cable with the POWERCON® TRUE1 connector is plugged in correctly.
3. If the problem persists, contact an authorised service centre.

The monitor turns on but does not produce any sound:

1. Check that the audio signal inputs are connected correctly, preferably using cables with Neutrik® connectors.
2. Check that the cables used are not damaged.
3. Check that the mixer or audio source is on and clearly shows an output signal.

The sound from the monitor is distorted:

1. With the system powered on, first adjust the volume of the audio source. If the source LIMITER LED is on, the signal may already be distorted before it reaches the speaker.
2. Check that the connection cables are not damaged. If they are, replace them (a damaged cable may cause signal loss or alteration).
3. Check the preset EQ saved on the Service/User button that alters the frequency response of the output signal.

TECHNICAL SPECIFICATIONS

GENERAL
ACOUSTIC DATA

Frequency response [-6 dB]:	57 - 19200 Hz
Max SPL (@ 1m):	138 dB
HF-MF exit:	1,4"
HF Voice Coil:	4" - 2.5"
Crossover frequency:	540 Hz (LF-MF) - 4 kHz (MF-HF) 24 dB/oct
Coverage (HxV):	90° x 40° (rotatable)
LF:	2 x 10"
LF Voice Coil:	2,5"

AMPLIFIER

Type:	Digipro G4
Amplification class:	Classe D (4 ch.)
Peak power:	2800 W
RMS power:	1400 W
Power supply:	Full range PFC
Cooling method:	Passive convection

PROCESSOR

Internal processing:	DSP 32 bit
A/D D/A converter:	24 bit / 96 kHz
Limiter:	Dual Active Peak, RMS, Thermal

USER INTERFACE

Presets:	Full range, HPF (60, 65, 70, 75, 80, 90 Hz), Service/User
Controls:	Rotary encoder (Preset), 4 System LED, 3 RDNet LED

INPUTS AND OUTPUTS

Audio inputs:	XLR
Audio outputs:	XLR Link OUT
USB (firmware update):	type B USB

POWER SUPPLY SPECIFICATIONS (POWER CONSUMPTION / INSTALLATION)

Power consumption at 1/8 power in medium use conditions (*):	1.5 A @115V A 0.8 A @230V AC
Power consumption at 1/3 power in heavy use conditions	3.7 A @115V AC 1.8 A @230V AC
Power consumption with speaker on but no signal (idle):	0.28 A @115 V AC 0.25 A @ 230 V AC
Inrush current:	31.7 A
Total permissible current and power in a linked system:	16.3 A - 1800 W (100-120V) 14.2 A - 3200 W (220-240V)

NOTE FOR THE INSTALLER: Values refer to 1/8 power under normal operating conditions (music program with rare or no clipping). For any configuration type, we recommend considering them to be the minimum values for dimensioning.

NOTE FOR THE INSTALLER: Values refer to 1/3 power under heavy operating conditions (music program with frequent clipping and limiting). We recommend dimensioning in accordance with these values for professional installations and tours.

DIMENProduct features, specifications and appearance are subject to change without prior notice. dBTechnologies reserves the right to make changes or improvements in design or manufacturing without any obligation to change or improve previously manufactured products.SIONS

Material:	Coated plywood cabinet with polyurea finish
Grille:	Painted metal / CNC machined
Flown and stacked installation:	With HB-3X10 and VB-3X10 accessories
Handles:	Built in (2 at the rear)
Pole mounting:	Yes using optional bracket
Width:	300 mm (11.8 inch.)
Height:	780 mm (30.7 inch.)
Depth:	430 mm (16.9 inch.)
Weight:	28 kg (61.5 lbs.)

Product features, specifications and appearance are subject to change without prior notice. dBTechnologies reserves the right to make changes or improvements in design or manufacturing without any obligation to change or improve previously manufactured products.

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www.dbtechnologies.com

info@dbtechnologies-aeb.com

Documents / Resources

References

- **AEB Software for Global Trade and Logistics**
- **dBTechnologies - Professional Audio Equipment**
- **dBTechnologies - Professional Audio Equipment**
- **Software & Controller - dBTechnologies**
- **Download - dBTechnologies**
- **Download - dBTechnologies**
- **Supporto - dBTechnologies**