dBTechnologies VIO C212 Active Line Source Speaker System User Manual

USER MANUAL – Section 1

The warnings contained in this manual as well as the information listed in “USER MANUAL – Section 2” must be complied with.

Contents

EMI CLASSIFICATION

According to the standards EN 55032 and 55035, this is Class A equipment, designed and suitable to operate for professional use.
Warning: This equipment is compliant with Class A of CISPR 32. In a residential environment, this equipment may cause radio interference.
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 when the equipment is operated in a commercial environment.
This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, 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.
Changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.
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 di 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 dBTechnologies for accessories to be used with the speakers. dBTechnologies will not accept any responsibility for damages caused by inappropiate accessories or additional devices.

IMPORTANT SAFETY INSTRUCTIONS:

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 a 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 is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for the 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 combination 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 damaged in any way, such as power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into 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 designed and developed in Italy by dBTechnologies! These ergonomic and versatile loudspeakers for active clusters are the result of a long experience in the sound reinforcement industry, making use of optimized sound, electronic and material research solutions.
PRODUCT OVERVIEW
The new VIO C professional loudspeakers for installation in clusters are powerful and effective. They are equipped with a 1.4" compression driver (voice coil: 3") in titanium/mylar and a 12" (VIO C12) or 15" (VIO C15) neodymium woofer or two 12" (VIO C12) neodymium woofers. They deliver a considerable sound pressure level (max SPL@ 1m): 139 dB (VIO C12), 140 dB (VIO C15), 141 dB.
Its main features are:

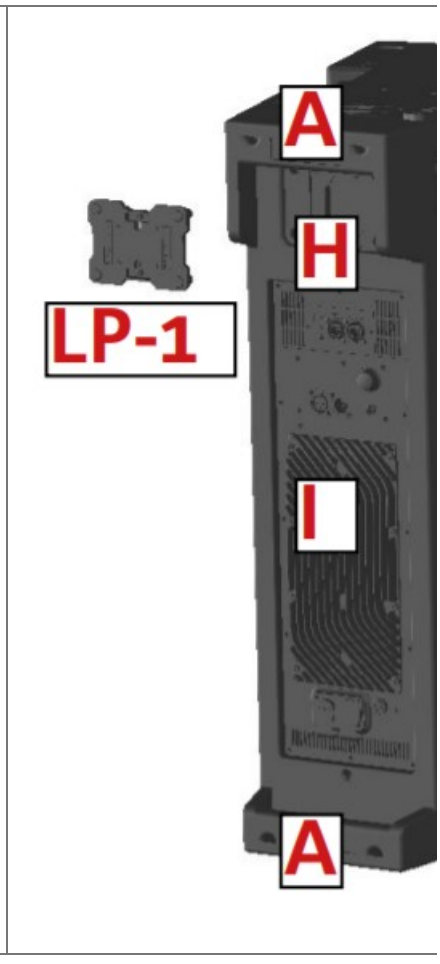
- an ergonomic design for fast installation of vertical and horizontal clusters
- wooden cabinet with polyurea finish, to combine the highest acoustic performance to sturdiness
- DIGIPRO G4 digital amplifier with 3200 W peak output

- balanced IN/LINK input and output audio connections with Floating Audio technology
- power daisy chain with POWER CON TRUE1® connectors for simplified wiring
- IR sensors for master/slave recognition and control from a single cluster module
- a complete set of accessories for vertical and horizontal cluster rigging
- RDNet on board for the professional remote control through the interfaces Control2, Control 8, and the integration on the AURORA NET software

USER REFERENCE
To make the most of your loudspeakers, we recommend that you:

- read the quick start user manual included in the package and this user manual thoroughly and keep this manual during the whole life of the product.
- Register your product at **http://www.dbtechnologies.com** under “SUPPORT”.
- keep proof of purchase and WARRANTY (User manual “section 2”).

PACKAGE CONTENT AND MAIN FEATURES



The package contains:

- VIO C (depending on the purchased model)
- Mechanical LP-1 link plug for cluster installation
- Power cable and fuse according to Country of use
- Paper documentation (quick-start guide, section 1 and section 2 warnings-warranty)

The figure shows:
A – Rear handles (one at the top, one at the bottom)
B – IR sensors
C – Upper mechanical fixing seats (one on each side)
D – Side handle, one on each side
E – Lower mechanical fixing seats (one on each side)
F – LEDs for remote positioning verification with Aurora Net
G – Rubber feet (2 at the top, 4 on the side)
H – Seat for LP-1 transport
I – Amplification section
LP-1, which can be housed in position H for transport, is mandatory for cluster construction. Please refer to the relevant chapter: CLUSTER INSTALLATION AND LP-1 ACCESSORY.

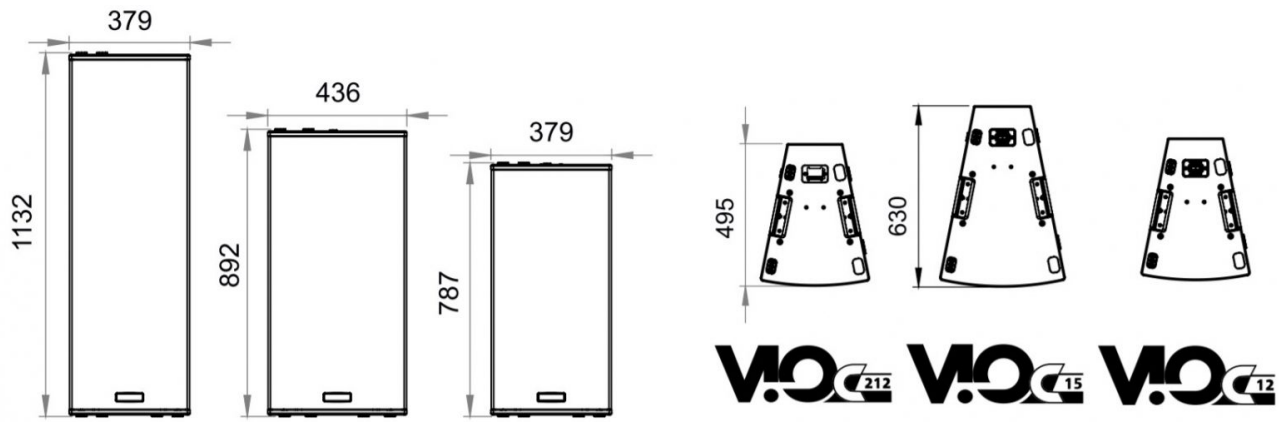
COVERAGE (HORIZONTAL CLUSTER)

The horizontal sound coverage of a speaker for the 3 models is:
22.5°. The coverage in the horizontal clusters can be assumed to be the sum of the individual coverages (e.g. clusters of 4 VIO C units side by side: 90°).
The vertical coverage is asymmetrical and varies according to the model.
VIO C12-C212: +20° -35°.
VIO C15: +15° -30°.
In addition to the use in horizontal 1-layer clusters, VIO C12 AND
VIO C15 can be used in 2-layer clusters.
In this case, as shown in the figure, the speakers are upside down in the upper layer: therefore, thanks to the matching of the acoustic horns, the vertical coverage can be as follows:
VIO C12 – 2-layer clusters – V: 70°
VIO C15 – 2-layer clusters – V: 60°

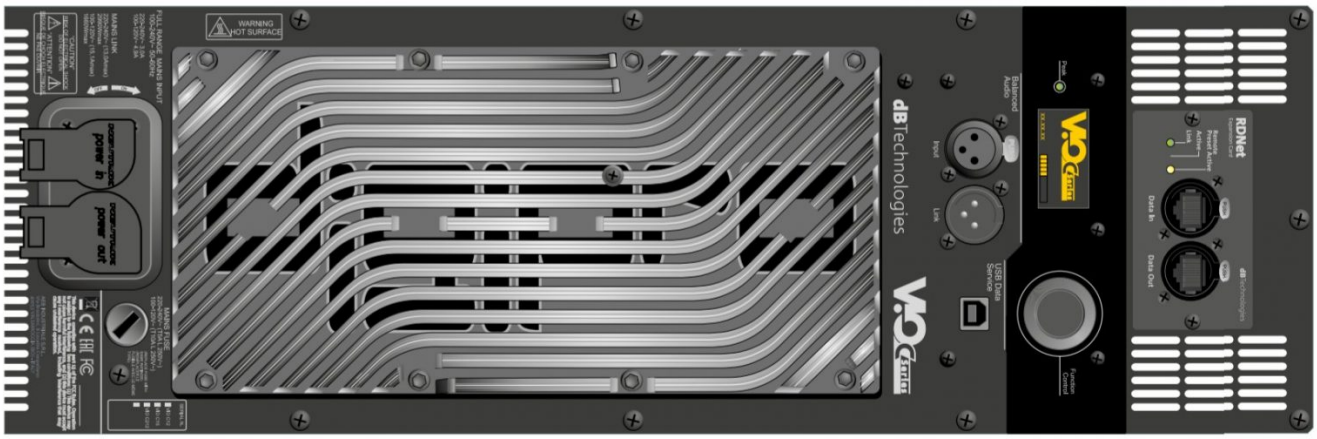
DIMENSIONS

The VIO C series has been designed with the intent to optimize weight and dimensions in relation to performance.
For a quick comparison of the 3 models, the overall dimensions are the following:
VIO C12 – 379 mm (w), 787 mm (H), 495 mm (D)
VIO C15 – 436 mm (W), 892 mm (H), 630 mm (D)

VIO C212 – 379 mm (W), 1132 mm (H), 495 mm (D)



AMPLIFICATION, CONNECTION, AND CONTROL SECTION



POWER SUPPLY UNIT SECTION

I/O, RDNET AND CONTROL SECTION

DIGIPRO G4 amplifier delivers 3200 W peak output for all three models. The cooling system features active ventilation. The audio processing is controlled by a dedicated powerful DSP.
The electronics manage the different parameters, checking the positioning in clusters thanks to the IR sensor recognition.

⚠WARNING!

- Protect the unit from moisture.
- Never attempt to disassemble the amplifier in any way.
- In the event of a malfunction, remove power supply immediately by disconnecting the unit from the power mains and contact an authorised repair centre.

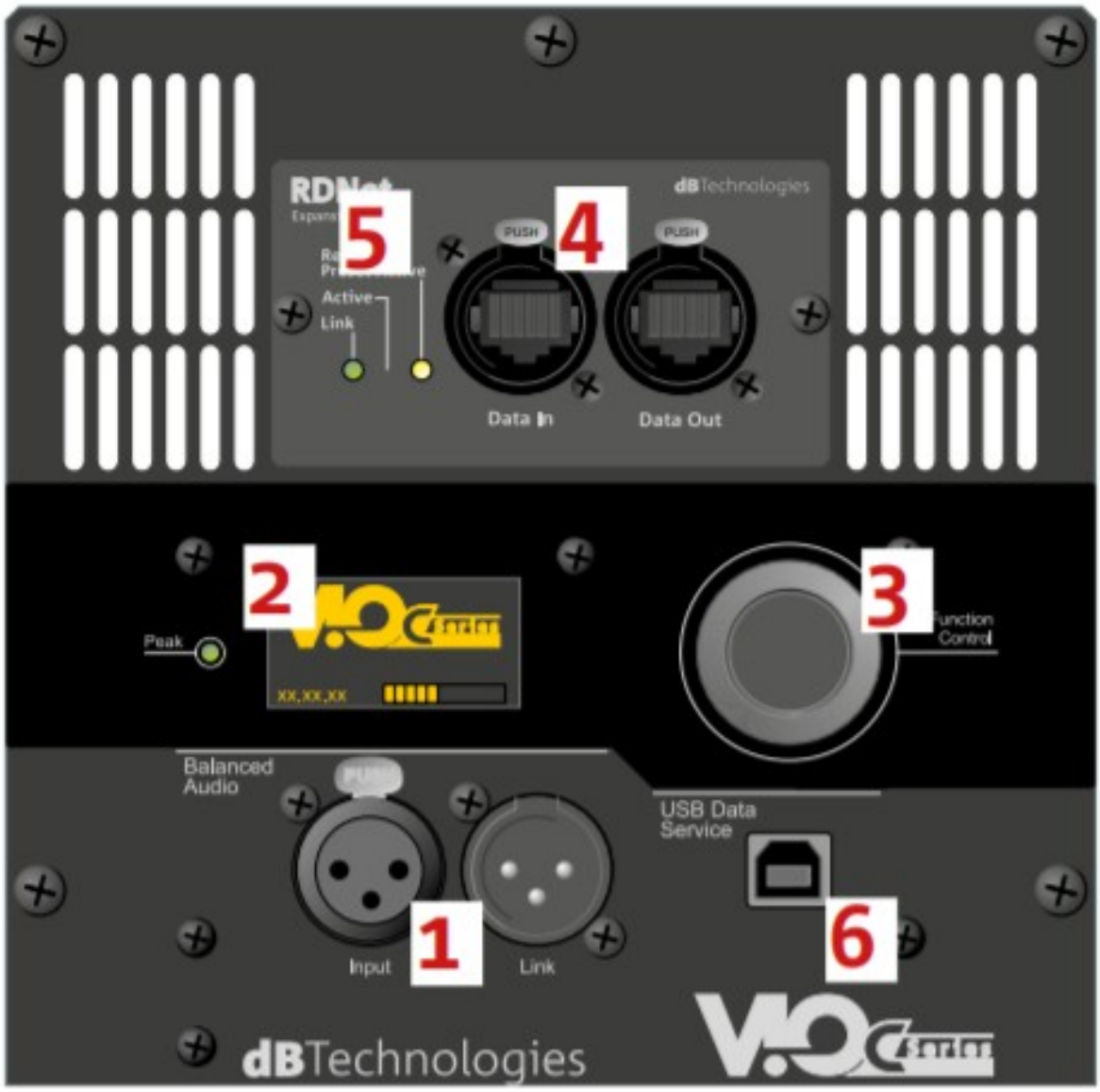
The DIGIPRO G4 panel is made up of:

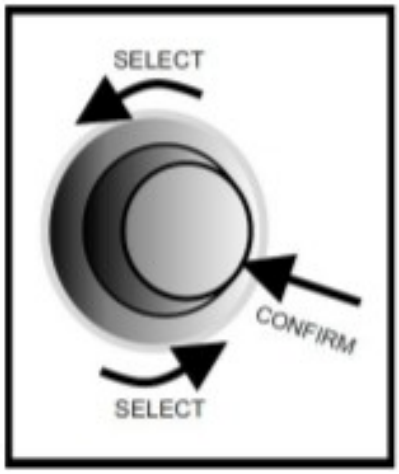
- **Input, Output and Control Section**
- **Power Supply Unit Section**

WARNING!

- Never remove the front grille protecting the product.
  To prevent the danger of electric shock, in case of accidental damage or replacement of the protection grille (to be carried out at the service), disconnect the power supply immediately.
  Never connect the mains power supply when the grille is removed.

INPUT, OUTPUT, RDNET, AND CONTROL SECTION





1. **INPUT AND OUTPUT LINK (“Balanced audio”)**

   Input and output compatible with cables with balanced XLR connectors.

   In particular, “Input” is used to connect with the audio signal coming from the mixer or from another loudspeaker, “Link” is used to link the signal to other loudspeakers.

2. **OLED DISPLAY**

   It allows displaying all VIO C control parameters or signaling that the control is remote (Aurora Net)

3. **PUSH/ROTARY ENCODER**

   A button that can be pressed or rotated.

Pressing this button allows you to change a parameter or confirm it, rotating it allows you to select the value or increase/decrease it.

4. **INPUT AND NETWORK CONNECTION LINK RDNet**

   Section compatible with network cables with etherCON/RJ45 connectors. In particular, “Data in” must be connected to devices such as RDNet Control 2 or Control 8; “Data Out” is used to link the network to additional loudspeakers in a daisy-chain configuration.

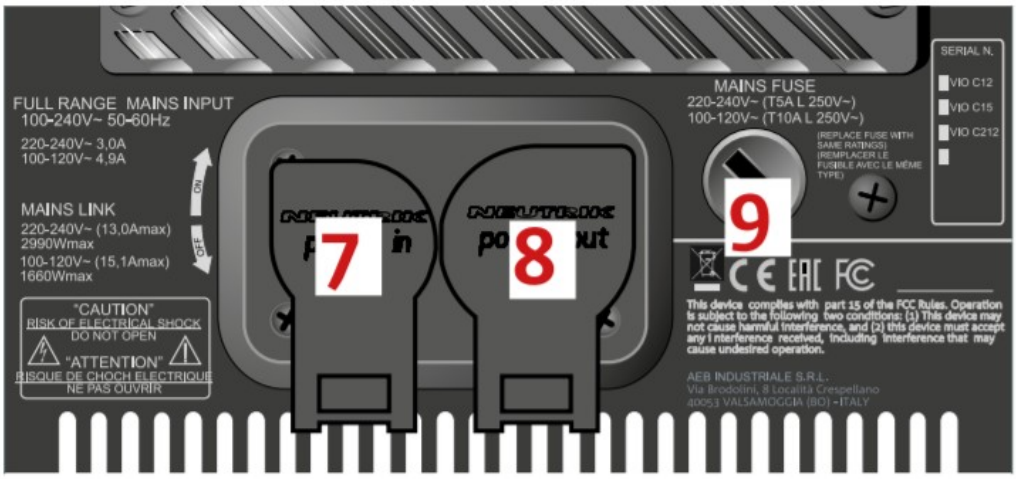
5. **CONTROL LEDs**

   LEDs relating to module network operation (RDNet).

   In particular, if “Link” is on the RDNet network is active and has acknowledged the device, if “Active” is flashing there is data traffic, if “Remote Preset Active” is on all local control on the amplifier panel are by-passed by the RDNet remote control.

6. **SERVICE DATA USB PORT**

   It is a USB B port to be used only for product firmware updates.



POWER SUPPLY UNIT SECTION

7. **“MAINS INPUT” POWER CONNECTOR**

   Compatible with the powerCON TRUE1 connector, the power supply is full range.

8. **“MAINS LINK” POWER DAISY CHAIN**

   Compatible with powerCON TRUE1 connector for power daisy chain to other speakers.

   To find the maximum number of modules that can be connected in a re-linked system, see the TECHNICAL SPECIFICATIONS section.

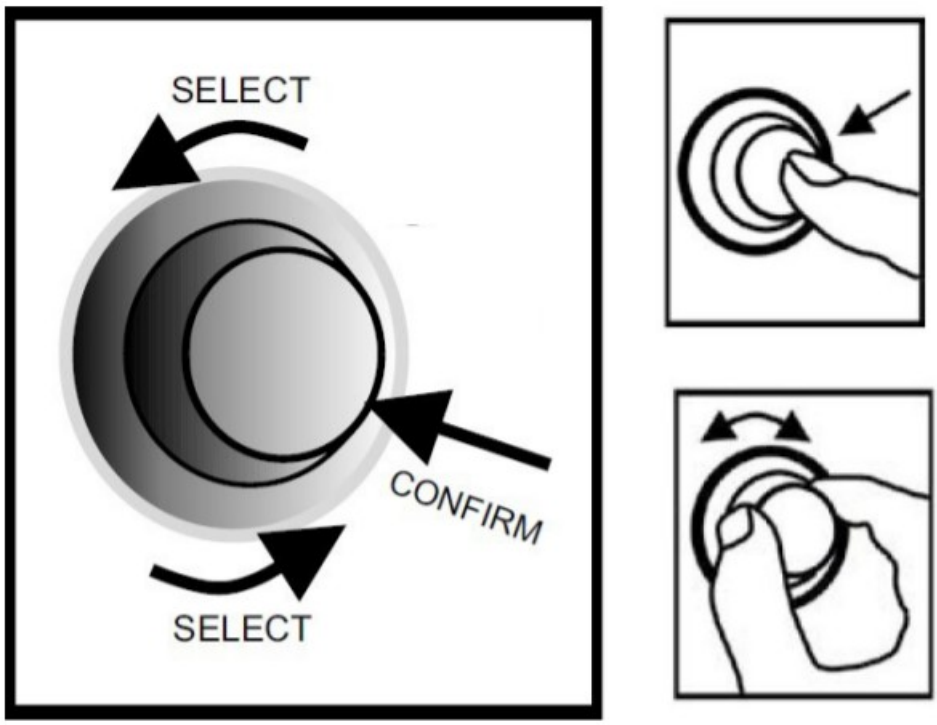
9. **MAINS FUSE**

   Housing for the mains fuse.

INFORMATION ON POWER DAISY CHAIN

In the 220-240V~ range of use, the maximum number of VIO C linkable speakers is 1+4.
In the 100-120V~ range of use, it is 1+3 for all models.

ACCESS TO PARAMETERS AND MENUS



PUSH/ROTARY ENCODER

Use the control panel button to access all the speaker parameters displayed on the screen. Pressing this button allows you to change a parameter or confirm it, rotating it allows you to select the value or increase/ decrease it.

SWITCH-ON AND CLUSTER RECOGNITION

The initial page is shown upon switch-on (FIG.1).

FIG.1

Once the cluster has been recognized, there is a simplified procedure to control it entirely from a single control panel.

In particular, if the IR sensors detect a speaker next to the one you are operating on, the relevant symbol  will be highlighted (FIG. 2)

FIG. 2

If the IR sensors detect a speaker above the one you are operating on, that speaker will be considered as a slave unit by default, and its display will show the relevant screen page (FIG.3).

FIG. 3

In this case, if you change a parameter on the master, all slaves (next to it and above) in the cluster will start flashing.
Press the button on the panel of each slave once to confirm this parameter on all elements of the cluster.

MAIN PARAMETERS
In sequence, the user can access the following screen pages on the control panel of a master (in figure 4a, 4b, 4c, 4d respectively):

- **LEVEL** (0 -12dB / MUTE)
- **HPF** (High Pass Filter) (60 120 Hz / FLAT)
- **DELAY** (0 – 10 ms)
- **MENU**

In particular, MENU allows accessing:
-EXIT **(to quit the menu)**
-CLEAR CONFIGURATION (to reset local parameters)
-SPEAKER TEST (to immediately test impedance on the HF or LF channel)
-SAVE/RECALL MENU (to save/recall settings on VIO C)
-OPTION
If the speaker is a slave unit, only OPTION – MENU – SPEAKER TEST will be displayed.
In particular, OPTION allows acting on the following parameters:
-contrast (to adjust contrast)
-stand-by (to enable and set an idle time after
which the speaker sets to standby mode)
-restore
-force master (to force a slave to become a master)

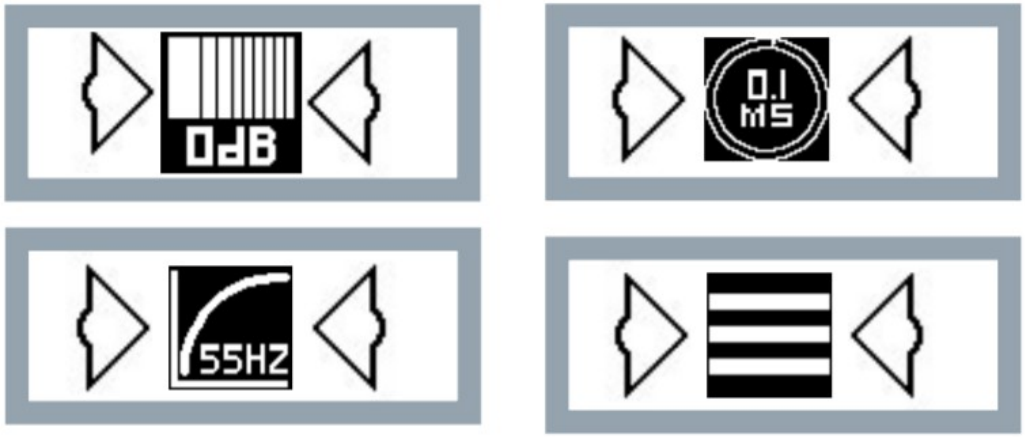
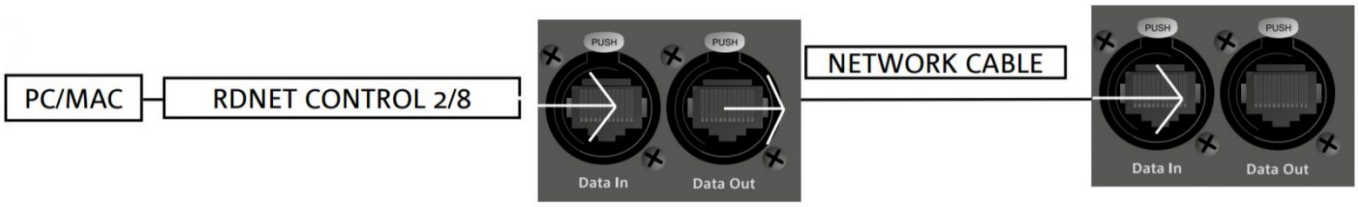


FIG. 4a, 4b

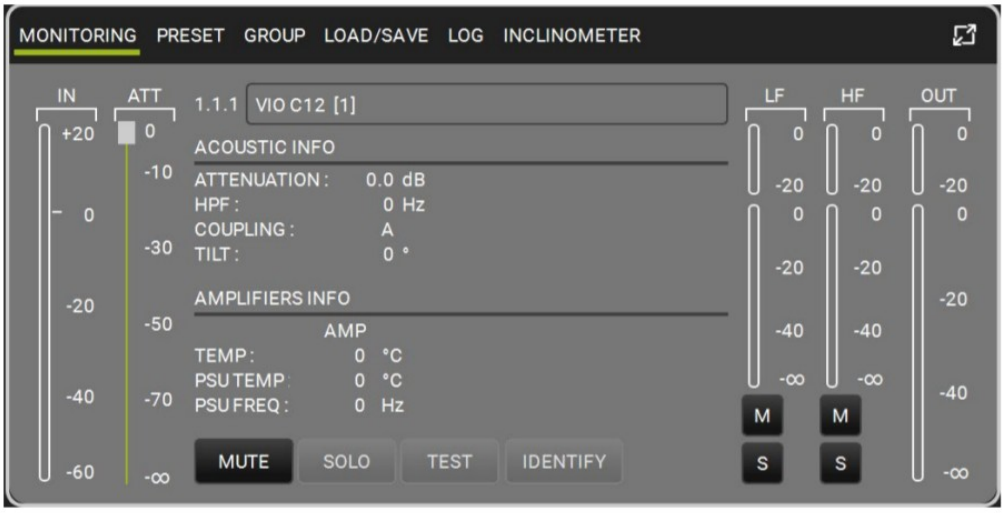
FIG. 4c, 4d

REMOTE CONTROL AND RDNET CONNECTION (AURORA NET)

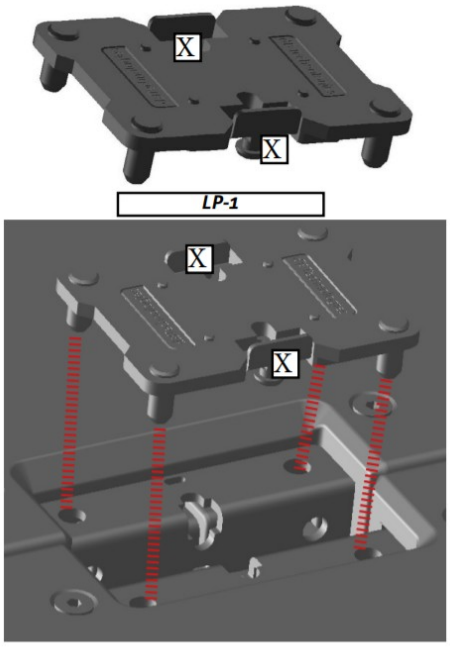


All speaker and cluster parameters can be adjusted with the remote control, once the RDNet connections have been properly made, using the AURORA NET software. When using the remote control, the local controls on the speaker are bypassed. Using this software, you can control a larger number of parameters (for more information, please refer to the AURORA NET user manual).
In the case of remote control and connection with AURORA NET, the DISPLAY shows a screen page with the software logo locally on the speaker (FIG. 5).

FIG. 5



LP-1 AND CLUSTER INSTALLATION



The LP-1 link plug is required for creating VIO-C clusters. It is equipped with 2 buttons X for quick coupling. The number of required LP-1 link plugs varies depending on the number of elements and whether the installation is in flown or stacked configuration. Two people are required to connect the LP-1, following the sequence below:

1. align the pins to the holes of 2 speakers in the mechanical seats C or E, as shown in the figure below
2. press and hold the buttons X down to insert LP-1
3. release the buttons X

The figure at the top right side shows the possible connection positions in a cluster: T (top), E (external), I (internal), L (lower). According to this nomenclature, depending on whether the installation is with one or two layers and whether it is flown or stacked, the table below shows the LP-1 numbers required for correct installation.

STACKED 1-LAYER CLUSTER

No. of VIO C speakers per layer	No. of LP-1 link plugs
1	1 (T)
2	2 (T)
3	3 (T)

FLOWN 1-LAYER CLUSTER

No. of VIO C speakers per layer	No. of LP-1 link plugs
1	1 (T)
2	2 (T)
3	3 (L) + 1 (T)

STACKED 2-LAYER CLUSTER

No. of VIO C speakers per layer	No. of LP-1 link plugs
1	1 (T)+2(E)
2	2 (T)+2(E)
3	3 (L) + +2(E)

FLOWN 2-LAYER CLUSTER

No. of VIO C speakers p er layer	No. of LP-1 link plugs
1	1 (T)+2(E)+2(I)
2	2 (T)+2(E)+2(I)
3	3 (L) + +2(E)+3(L)+6(I)

CLUSTERIN FLOWN AND STACKED CONFIGURATION AND ACCESSORIES

- **Types of installation other than those here described are not allowed.**
- **Never use the handles to suspend the speaker**
- **Always check that the positioning is stable and that the installation does not pose a danger to people, animals or property.**
- **Perform the stacked installation on a flat, not tilted surface, otherwise an additional safety fastening is mandatory.**

The clusters of VIO C12 and VIO C15 allow one or two layers in both stacked and flown configuration, while those of VIO C212 only one layer.
Below are indicated, as a summary, the flown configurations, the maximum number of speakers in mountable clusters divided by model and accessory needed for hanging.

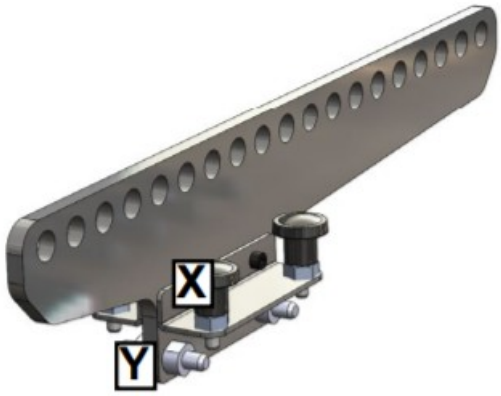
MODEL	DRK-C	DRKL-3	DRKL-4	DRK-CCA
VIO C12	2+2	3+3	4+4	4
VIO C15	2+2	3+3	4+4	4
VIO C212	2	3	4	NOT ALLOWED

A summary of the main accessories required to use VIO C clusters is shown in the table below.

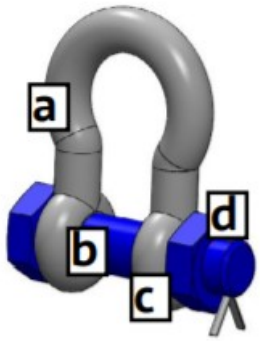
NAME	USE
LP-1	CONNECTION FOR 2 OR MORE SPEAKERS IN CLUSTERS (THE NUMBER DEPENDS ON THE CONFIGURATION)
DRK-C	FLYBAR FOR 2 SPEAKERS PER LAYER (MAX 4 VIO C)
DRKL-3	FLYBAR FOR 3 SPEAKERS PER LAYER (MAX 6 VIO C)
DRKL-4	FLYBAR FOR 4 SPEAKERS PER LAYER
DRK-CCA	FLYBAR IN VERTICAL INSTALLATION (MAX. 4 SPEAKERS)
RC-VIOC	RAIN COVER

The accessories for flown installation are described in detail on the following pages.

DRK-C
DRK-C is the fly-bar for the flown installation of VIO-C clusters. It is used alone for a cluster of up to 2 layers of 2 elements each, or, in combination
with other fly-bar models, for larger clusters. Two shackles with safety pin for hanging are included in the supply. Depending on the type, the LP-1
link plugs are always required for the installation of the clusters, see the relevant instructions.
DRK-C is characterised by:

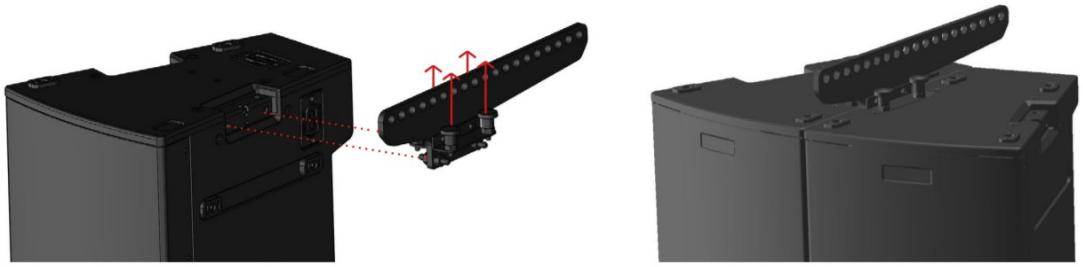


X – QUICK RELEASE PINS (x 4)
Y – HORIZONTAL PINS
The shackles with safety pin are equipped with:

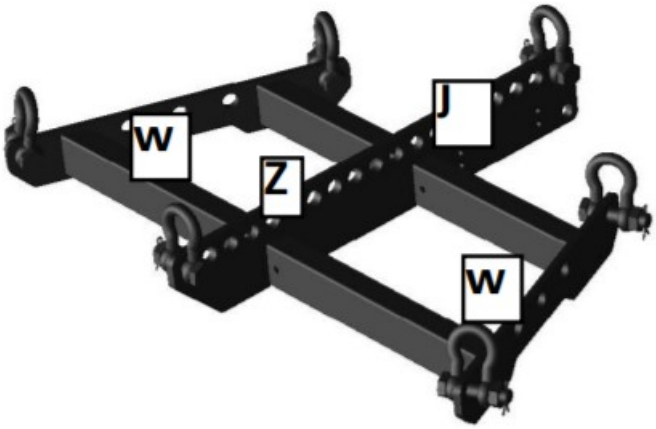


a – SHACKLE
b – BOLT
c – NUT
d – PIN
The insertion into the first VIO-C of DRK-C is done by lifting the pins **X** of the first side and inserting the horizontal pins **Y** into the mechanical seat,
then proceeding to the other side with the second speaker. Note that the pins **X** remain in the lifted position, with a

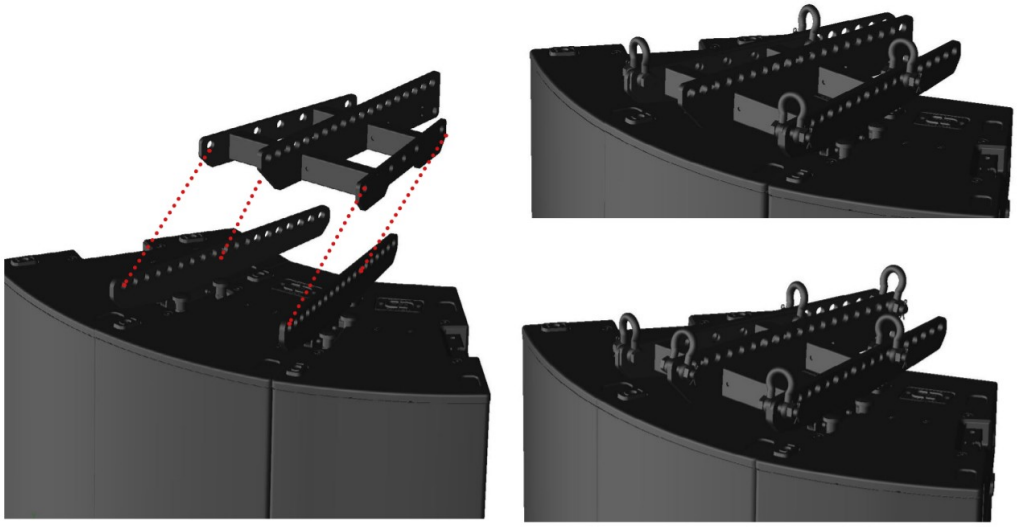
slight rotation when lifted, and
unlock again with a subsequent rotation.
Insert the 2 shackles for the flown hanging (by unscrewing the nut c, inserting bolt b into the holes, and tightening and inserting the safety pin).
The maximum load is 190 kg/418.9 lbs.



DRKL-3
DRKL-3 is the fly-bar for the flown installation of VIO-C clusters. It is used for a cluster of up to 2 layers of 3 elements each. Two shackles with pin for hanging are included in the supply. 2 DRK-C units and the use of LP-1 link plugs are required for installation, depending on the configuration.
DRKL-3 is characterised by:

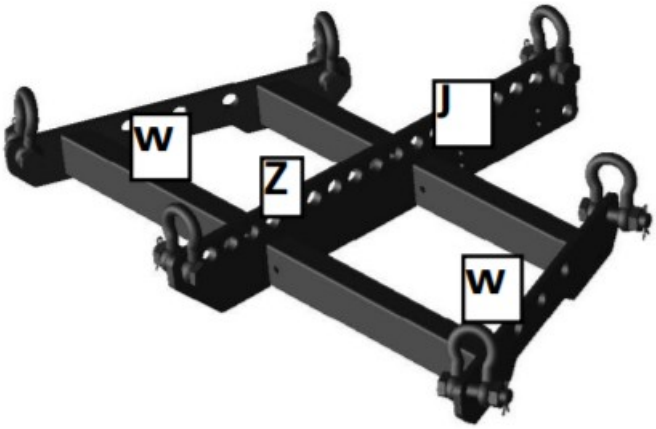


W – BRACKETS FOR DRK-C
Z – MAIN BRACKET
J – HOUSING FOR LASER INCLINOMETER (OPTIONAL)
See the previous **DRK-C** section for preliminary details.
The installation starts with a cluster with 2 DRK-C units and relevant LP-1 link plugs already installed.
The bracket**s W** are fixed to the DRK-C units by their shackles, using the far end holes shown in the figure.
Then the 2 shackles supplied are used on the main bracket Z, according to the positions of the holes on the label (1-19 to comply with EUROCODE 3
regulation, 5-12 to comply with BGV-C1 regulation).
The maximum load is 280 kg/617.3 lbs.

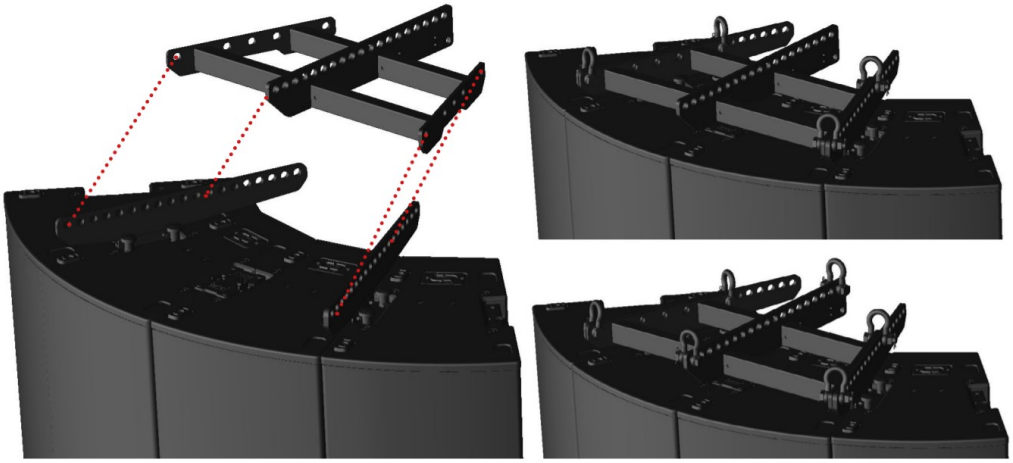


DRKL-4

DRKL-4 is the fly-bar for the flown installation of VIO-C clusters. It is used for a cluster of up to 2 layers of 3 elements each. Two shackles with pin for hanging and 2 LP-1 link-brackets are included in the supply.
2 DRK-C units and the use of LP-1 link plugs are required for installation, depending on the configuration.
DRKL-4 is characterised by:

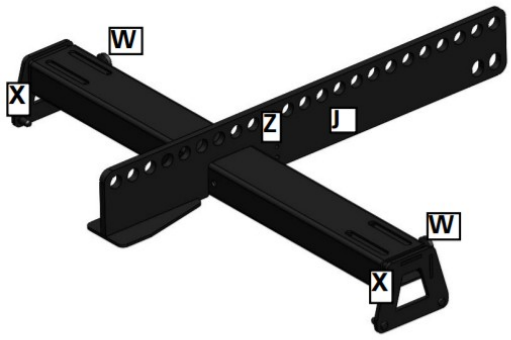


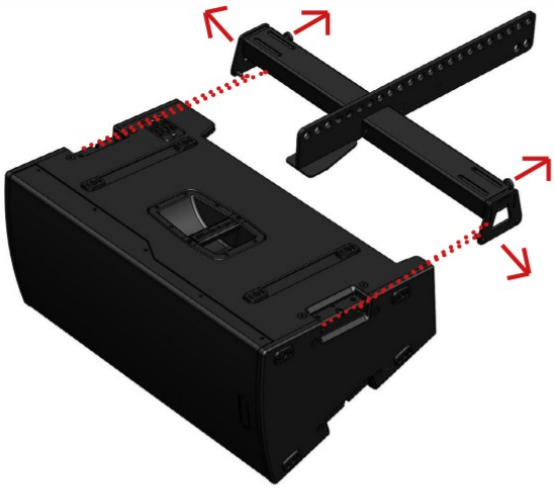
W – BRACKETS FOR DRK-C
Z – MAIN BRACKET
J – HOUSING FOR LASER INCLINOMETER (OPTIONAL)
See the previous DRK-C section for preliminary details.
The installation starts with a cluster with 2 DRK-C units and relevant LP-1 link plugs already installed.
The brackets W are fixed to the DRK-C units by their shackles, using the far end holes shown in the figure. Then the 2 shackles supplied are used on the main bracket Z, according to the positions of the holes on the label (1-19 to comply with EUROCODE 3 regulation, 5-12 to comply with BGV-C1
regulation).
Maximum load: 340 kg/749.6 lbs.

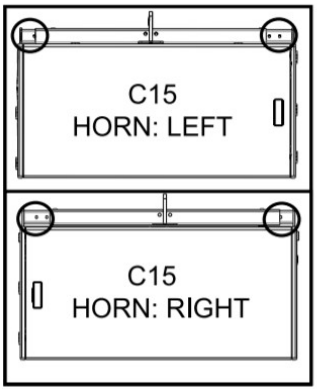


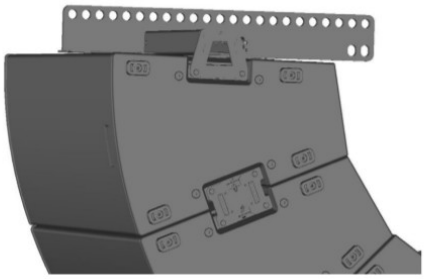
DRK-CCA

DRK-CCA is the fly-bar for the installation of up to four VIO C12 – VIO C15 units in vertical cluster.
For VIO C12 the assembling is symmetrical, while for VIO C15 it depends on whether the horn is fitted on the right or on the left – as shown in the diagram below – in order to balance the centre of gravity.
DRK-CCA is characterised by:
X – MOVABLE SIDE BRACKETS
W – EXTRACTABLE SAFETY PINS
Z – MAIN BRACKET
J – HOUSING FOR LASER INCLINOMETER (OPTIONAL)
For installation, LP-1 must be used in the lateral position as shown in the figure on the side.
To mount it, pull out the side brackets one at a time by acting on their pins and insert them into the upper element of the cluster.
The maximum allowed load is 170 kg/374 lbs









TROUBLESHOOTING

The loudspeaker will not turn on:

1. Check that power supply is present upstream of the installation.
2. Ensure that the power supply cable is properly plugged in.
3. Verify that the appropriate mains links are carried out correctly, and within the permitted limits.

The speaker turns on but produces no sound:

1. Check that the input connection of the audio signal is correctly performed.
2. Check the cables for damage.
3. Ensure that the mixer or audio source is on and an output signal is present.
4. Check that the input level is appropriate.
5. Check that MUTE function is not enabled both locally and remotely (AURORA NET).

Loudspeaker sound is inadequate or not sufficient:

1. Adjust the first source volume, then set the input gain to an adequate level. Check the cables for damage and replace them as required (a damaged cable may lead to signal loss or alteration).
2. Check the filtering set both locally and remotely (AURORA NET).

   3. Verify the integrity of the transducers with a local SPEAKER TEST, or with warning monitoring in case of remote connection (AURORA NET).

SPECIFICATIONS

GENERAL INFORMATION	
Type:	2-way active loudspeaker for cluster
ACOUSTICAL SPECIFICATIONS	
Frequency response [-10dB]:	52- 19 kHz (C12) / 42 – 19 kHz (C15) / 46 -19 kHz (C212)
Frequency response [-6dB]:	55- 18 kHz (C12) / 46 – 18 kHz (C15) / 51 – 18 kHz (C212)
Max SPL:	139 dB (C12) / 140 dB (C15) / 141 (C212)
HF voice coil:	3” (C12) / 3” (C15) / 3” (C212)
HF compression driver (output):	1.4” (C12) / 1.4” (C15) / 1.4” (C212)
LF:	12” (C12) / 15” (C15) / 2X12” (C212)
LF Voice coil:	3.5” (C12) / 3.5” (C15) / 3” (C212)
Crossover frequency (24 dB/oct):	900 Hz (C12) / 900 Hz (C15) / 900 Hz (C212)
Coverage (HxV):	22.5° x [+20 – 35°] (C12 – C212) / 22.5° x [+20 – 30 30°] (C15)
AMPLIFIER	
ype:	DIGIPRO G4

Amplification class:	Class D
ower supply	PowerCON TRUE1 connector
Cooling:	active ventilation
RMS amplifier power:	1600 W
Peak power:	3200 W
PROCESSOR	
Internal controller:	32 / 96-bit DSP
A/D D/A converter:	24 bit/ 96kHz
Limiter:	Peak, RMS, Thermal
USER INTERFACE	
Controls:	Push rotary encoder / OLED DISPLAY
INPUTS & OUTPUTS	
Inputs:	1 balanced audio input, 1 RDNet input
Outputs:	1x XLR Link OUT, 1 RDNet output
Power supply:	powerCON TRUE1 IN/LINK
POWER SUPPLY SPECIFICATIONS (ABSORPTION / INSTALLATION)	
Absorption at 1/8th of power in medium use conditions (*):	1.4 A (230 V) – 2.2 A (115 V)
Absorption at 1/3rd of power in maximum use conditions (**):	3 A (230 V) – 4.9 A (115 V)
Absorption with speaker on in no-signal condition (idle):	33 W
Inrush current:	3:00 AM
Number of linkable speakers:	5 (1+4) (230 V) / 4 (1+3) (115 V)

*** NOTE FOR INSTALLER:** Values refer to 1/8th of power, under average operating conditions (music programme with occasional or no clipping). For any type of configuration we recommend to consider them as minimum sizing values.

**** NOTE FOR INSTALLER:** Values refer to 1/3rd of power, under heavy operating conditions (music programme with frequent clipping and limiter activation). In case of professional installations and tours we recommend sizing according to these values.

DIMENSIONS

Material:	Wooden cabinet with polyurea finish
Grille:	NC-machined
Presetting for brackets:	Yes
Handles:	4 (2 on sides, 2 on top)
Quick coupling for rigging:	Mechanical seats for engagement with LP-1 link plug
Width:	379 mm (C12) / 436 mm (C15) / 379 (C212)
Height:	787 mm (C12) / 892 mm (C15) / 1132 (C212
Depth:	495 mm (C12) / 630 mm (C15) / 495 (C212)
Weight:	31.8 kg (C12) / 40.6 kg (C15) / 41.7 kg (C212)

Product features, specifications and appearance are subject to changes without prior notice. dBTechnologies reserves the right to make changes or improvements in design or manufacture without any obligation to incorporate such changes or improvements in products manufactured before their introduction.

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VIO C SERIES
Code 420120341 REV..1.0

Documents / Resources

	dBTechnologies VIO C212 Active Line Source Speaker System [pdf] User Manual VIO C212 Active Line Source Speaker System, VIO C15, VIO C12

References

- AEB Software for Global Trade and Logistics
- dBTechnologies - Professional Audio Equipment