MLA 608A - Mixed Control Active Line Array
MLA 801A - Mixed Control Active Line Array

VERTUS

Designed, Engineered
and Manufactured in ITALY

ENGLISH

INDEX

WARNING

RISK OF ELECTRIC SHOCK
DO NOT OPEN

**TO REDUCE THE RISK OF ELECTRIC SHOCK
DO NOT REMOVE COVER (OR BACK)
NO USER SERVICEABLE PARTS INSIDE
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL**

**TO REDUCE THE RISK OF FIRE OR ELECTRIC SHOCK
DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE**

*WHERE MARKED, THIS SYMBOL INDICATES A DANGEROUS NON-ISOLATED VOLTAGE INSIDE THE LOUDSPEAKER:
SUCH VOLTAGE COULD BE SUFFICIENT TO RESULT IN THE RISK OF ELECTRIC SHOCK.*

WHERE MARKED, THIS SYMBOL INDICATES IMPORTANT USAGE AND MAINTENANCE INSTRUCTIONS IN THE ENCLOSED DOCUMENTS. PLEASE REFER TO THE MANUAL.

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 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 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, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

THE DEVICE MUST BE CONNECTED TO THE MAINS THROUGH A POWER OUTLET WITH A PROTECTIVE EARTH CONNECTION.

This device features a power outlet ; install the device so that the outlet for the power cord is easily accessible .

PRECAUTIONS

° For proper air ventilation please make sure to leave sufficient clearance (min 11 inc.) on all sides of the device.
° Please do not cover the ventilation slots with papers, table cloths, curtains, etc. in order not to prevent ventilation of the device.
° Please do not place any naked flame source, such as lighted candles, on the device.
° Please keep the device away from water springs and splashes and please do not place any objects containing liquids, such as vases, on the device.

The **MLA** system has at least two categories: **MLA608A** to reproduce medium-low frequencies and **MLA801A** to reproduce high frequencies.

The system can be used in three operating modes.

> STAND-ALONE: the two speakers are manually and separately adjusted, using the relevant controls on the back.

> STAND-ALONE WITH CONNECTED LOUDSPEAKERS: works only on a system formed by 1 MLA608A and 1 MLA801A. The two speakers are connected by using two Ethernet cables and, with the switches at the back, one of the speakers is configured in SLAVE mode; in this way, it is entirely managed by the MASTER speaker and faithfully follows its programmed settings.

> CONTROLLABLE FROM PC: via the USB-RS485 converter and the RJ45 bridge, the MLA system can be connected to any PC. Using the relevant control software, the operator can precisely adjust all the pointing and equalization parameters of the system, supported by environments that simulate and display the sound field. Once the desired configuration is obtained, the data is transmitted to the MLA system.

VERTUS MLA 608A

VERTUS MLA 608A

> 6-way active mid/low Line Array Column in bass reflex
> Digital directivity aiming
> Control panel with XLR input and XLR link, XLR HP filtered out, Volume, Preset, 7-step angle aiming, HP filter, Ground Lift, RJ45 in/out for RS485 network, screw connectors for in/out audio and for installation
> 6 x 8" custom neodymium woofers with 2" voice coil
> 60Hz - 2kHz frequency response
> 6 Class D 250W RMS amplifiers with three switch mode power supplies for a total of 1500W power
> Completely controllable directional features through control switches on the back panel or through PC software and dedicated RS485 network
> Extruded-aluminum powder-coated cabinet with superior latching system as well as inferior
> Digital full range aiming from +5° to -25° with included beamwidth between 5° and 25°/40°
> PC/Slave function for aiming control via PC or other MLA module in the network
> Frontal status led
> Possibility of mounting on subwoofer or of wall-mount installation with the supplied bars.
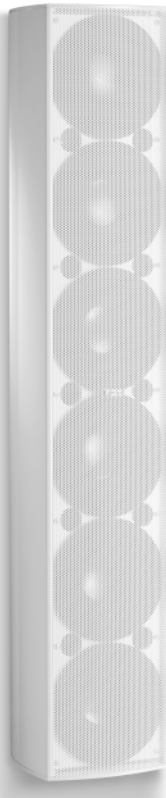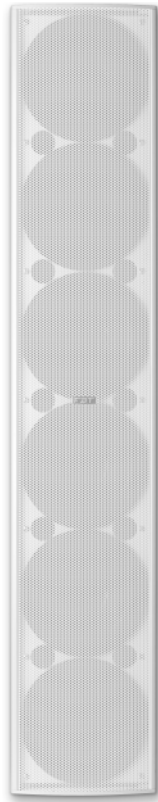
VERTUS MLA 801A

VERTUS MLA 801A

> *8-way active HF Line Array Column in bass reflex*
> *Digital / mechanical directivity aiming*
> *Control panel with XLR input and XLR link, volume, preset, 7 step angle aiming, ground-lift, RJ45 in /out for RS-485 network, Euroblock connector for in/out audio*
> *8 x 0,75" B&C neodymium drivers with 1" voice coil*
> *1.8kHz - 20kHz frequency response*
> *8 Class D 50W RMS amplifiers for a total of 400W power*
> *Completely controllable directional features, through control switches on the back panel or through PC software and dedicated network*
> *Extruded-aluminum powder coated cabinet with superior latching system as well as inferior*
> *Combined aiming digital / mechanical full-range system from +5° to -25° with included lobe width between 5° an 25° / 40°*
> *8 hybrid stepped motor controlled by a microprocessor for the mechanical aiming of wave guides*
> *PC / Slave function for aiming control via PC or other MLA module*
> *Frontal status led*
> *Possibility of mounting on subwoofer or of wall-mount installation with the supplied bars.*

220 - 230V∼

For its power supply, the whole MLA series features two NEUTRIK powercon three-pole outlets with locking connectors. Use the grey outlet for connecting several speakers with one another, and the blue one for supplying power to the system through the connector supplied.

CAUTION: the cable supplied can be used alone, and only if the total current absorption is lower than 16A (see example 1)

CAUTION: never replace the plug of the power cord supplied since the power cord can only support a maximum current of 16A (see example 1)
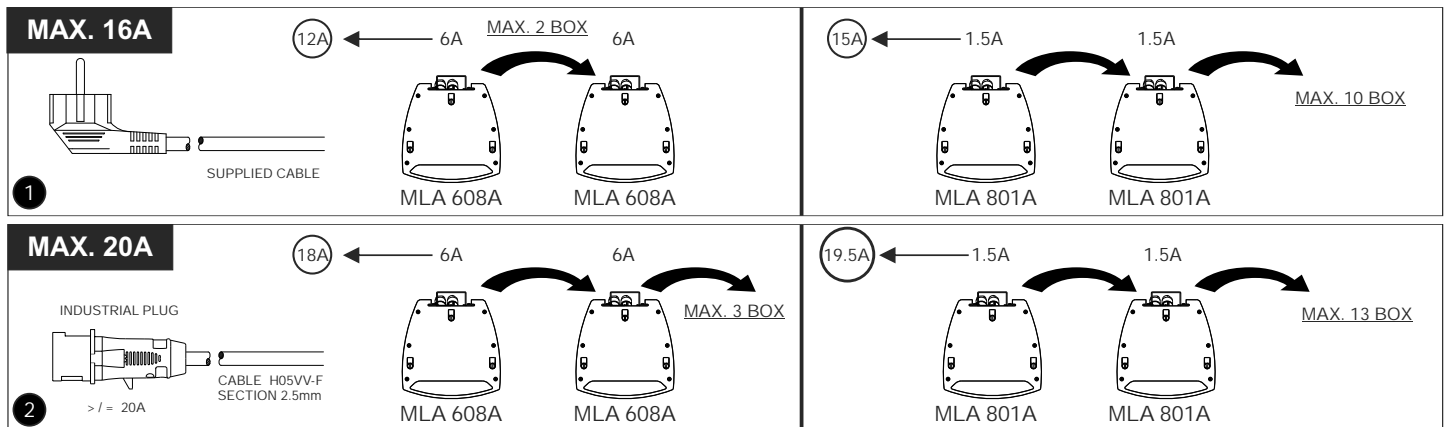
CAUTION: if the absorbed current exceeds 16A and is lower than 20A, a power cord has to be manufactured by specialized staff using a H05VV-F cable with 2.5 sq.mm section and plug with rated current >=20A, where 20A is the maximum rated current of the powercon connector (see example 2).

- The power cord has to be assembled by specialized staff complying with national plant-engineering regulations
- Protect the mains cable when it is not used
- In case of «chain connection», connect the cable to the grey outlet of the first speaker and to the blue outlet of the second one, and so on, **making sure the maximum current indicated on the «AC LOOP OUTPUT» is not exceeded.**

CAUTION: TO SWITCH OFF THE SYSTEM DISCONNECT THE MAINS SUPPLY PLUG **FIRST** AND **THEN** THE POWERCON CONNECTOR

MAX. 16A

① SUPPLIED CABLE

(12A) ← 6A — MAX. 2 BOX — 6A

MLA 608A   MLA 608A

(15A) ← 1.5A — 1.5A — MAX. 10 BOX

MLA 801A   MLA 801A

MAX. 20A

② INDUSTRIAL PLUG

CABLE H05VV-F SECTION 2.5mm

> / = 20A

(18A) ← 6A — 6A — MAX. 3 BOX

MLA 608A   MLA 608A

(19.5A) ← 1.5A — 1.5A — MAX. 13 BOX

MLA 801A   MLA 801A

120V~

For its power supply the whole MLA series features two NEUTRIK powercon three-pole outlets with locking connectors. Use the grey outlet for connecting several speakers with one another, and the blue one for supplying power to the system through the connector supplied.
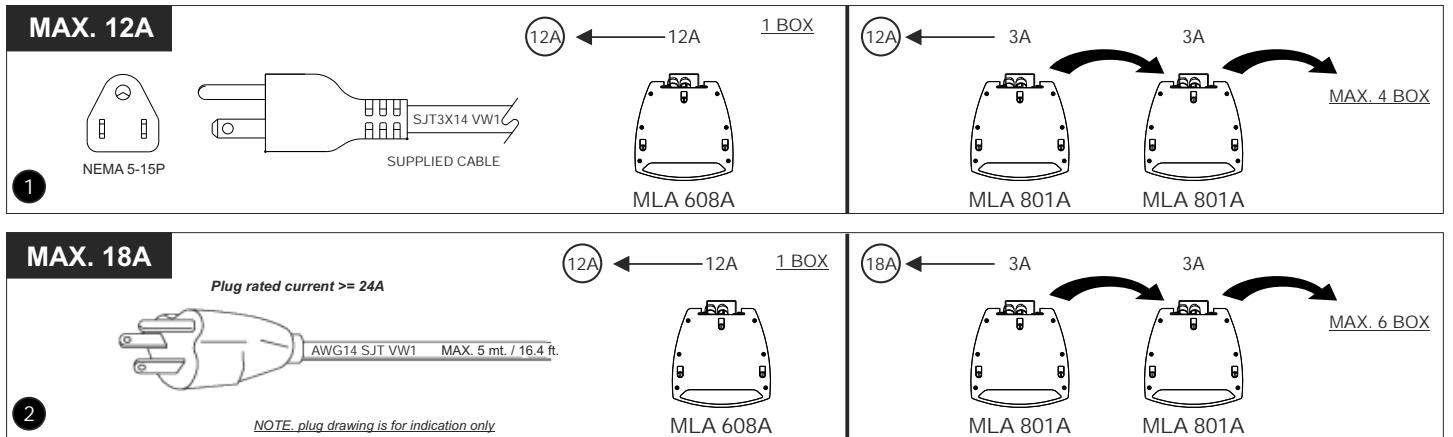
CAUTION: *If the total current demand does not exceed 12A, use the power cable supplied (see pict.1).*
If the total current demand is between 12A and 18A, use the power cable AWG14 SJT VW1 with plug rated current equal to 24A or lower (see pict.2).

*In both cases **NEVER** exceed the maximum current values shown in picture 1 and 2.*

*THE CABLE AND THE PLUG MUST HOLD THE **UL** OR **CSA** CERTIFICATION.*

- The power cord has to be assembled by specialized staff complying with national plant-engineering regulations.
- Protect the mains cable when it is not used.
- In case of "chain connection" connect the cable to the grey outlet of the first speaker and to the blue outlet of the second one, and so on,
  *making sure the maximum current indicated on the **"AC LOOP OUTPUTS"** is not exceed.*

*CAUTION: TO SWITCH OFF THE SYSTEM DISCONNECT THE MAINS SUPPLY PLUG **FIRST** AND **THEN** THE POWERCON CONNECTOR*
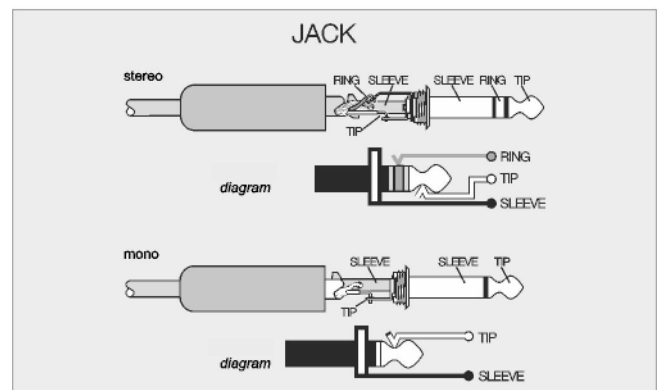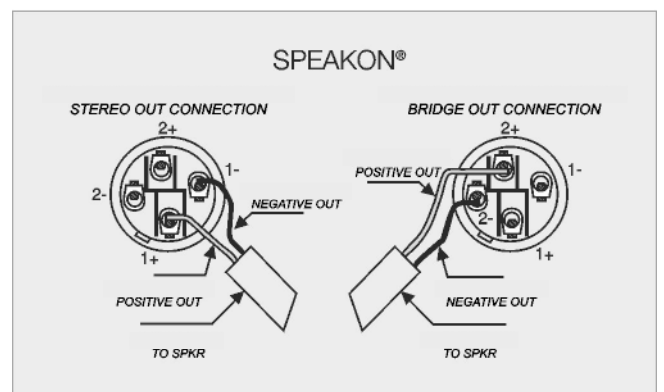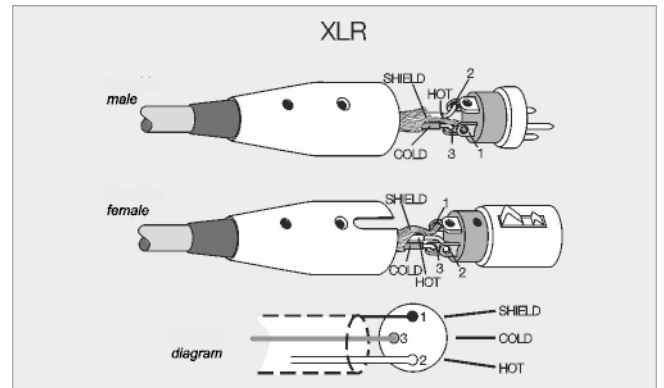
MAX. 12A

1 — NEMA 5-15P — SJT3X14 VW1 — SUPPLIED CABLE — (12A) ← 12A — 1 BOX — MLA 608A

(12A) ← 3A → 3A — MAX. 4 BOX — MLA 801A — MLA 801A

MAX. 18A

2 — *Plug rated current >= 24A* — AWG14 SJT VW1 — MAX. 5 mt. / 16.4 ft. — *NOTE. plug drawing is for indication only* — (12A) ← 12A — 1 BOX — MLA 608A

(18A) ← 3A → 3A — MAX. 6 BOX — MLA 801A — MLA 801A

The 3-pole XLR connectors are almost always used for conducting mono-balanced signals; the three poles correspond respectively to ground (1), the positive signal (2) and the negative signal (3).
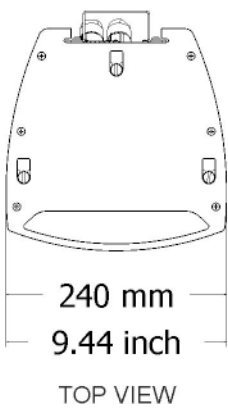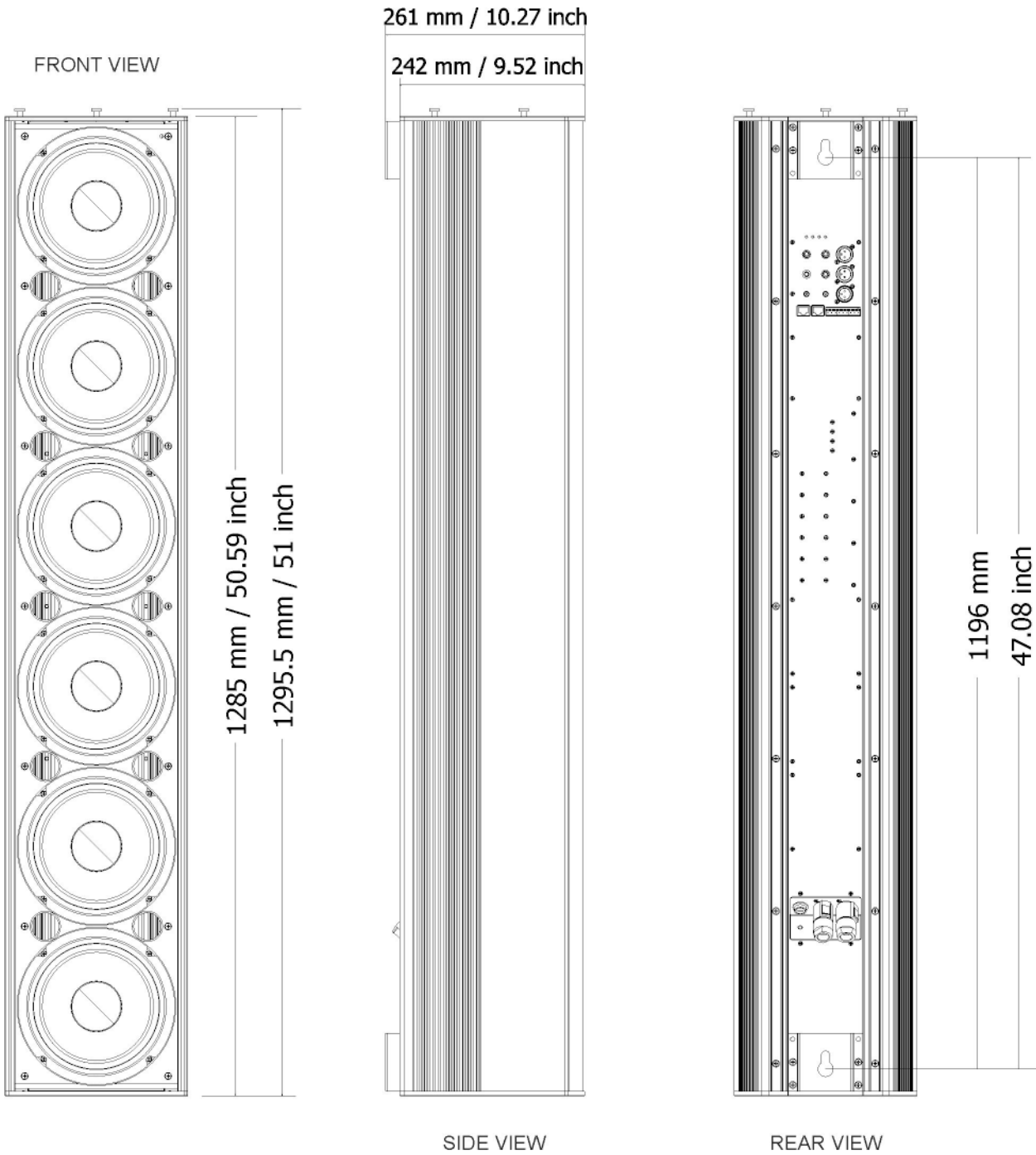
SPEAKON is a connector which is specially adapted for connecting power terminals to loudspeakers; when inserted in an appropriate socket it locks so as to prevent accidental disconnection; moreover, it is equipped with protection against electrical shocks and guarantees the correct polarisation.

The JACKS are typical connectors for the transporting of two separate signals through two channels, left and right, using a single connector and therefore they can be either mono or stereo. Mono jacks (TS) also known as unbalanced jacks, are recognisable from stereo or balanced jacks (TRS) by their composition. The point of the mono jacks is divided into two parts, tip and ground Tip and Slave) to which the two poles are connected; the stereo or balanced jacks are divided in three parts, as they have a central ring (Ring) which is connected to a second wire, the third (negative) pole.
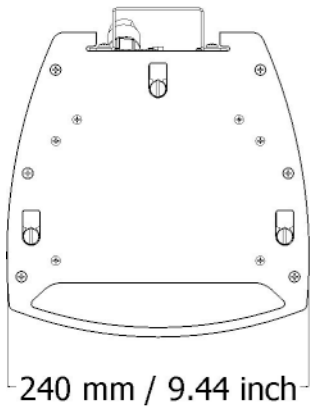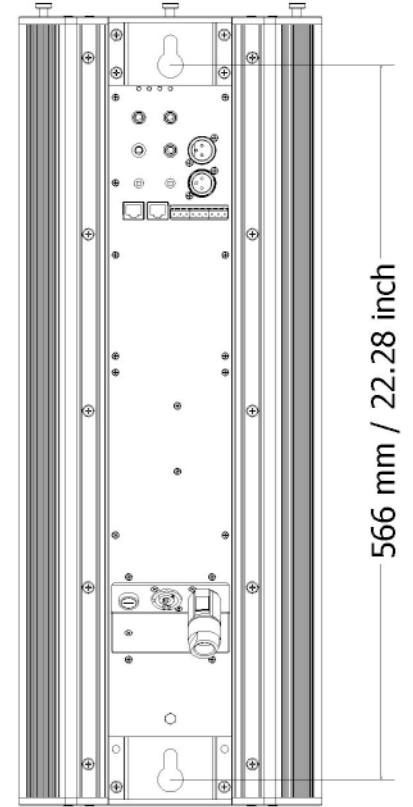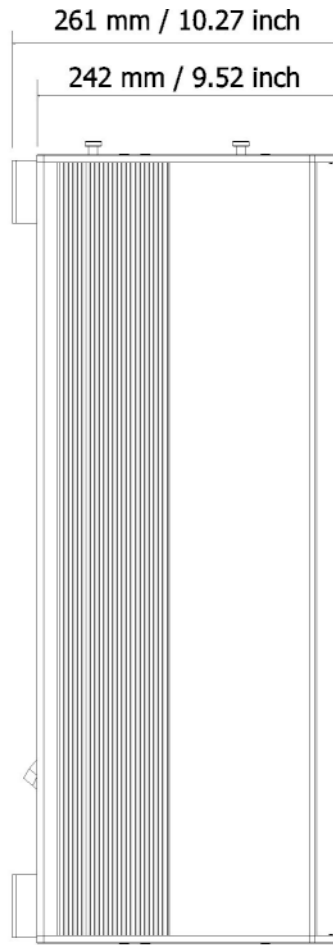
MLA 608A

FRONT VIEW

261 mm / 10.27 inch

242 mm / 9.52 inch

1285 mm / 50.59 inch

1295.5 mm / 51 inch

1196 mm

47.08 inch

SIDE VIEW

REAR VIEW

240 mm

9.44 inch

TOP VIEW

MLA 801A

FRONT VIEW

261 mm / 10.27 inch

242 mm / 9.52 inch

625 mm / 24.60 inch

635.5 mm / 25 inch

566 mm / 22.28 inch

SIDE VIEW

REAR VIEW

240 mm / 9.44 inch
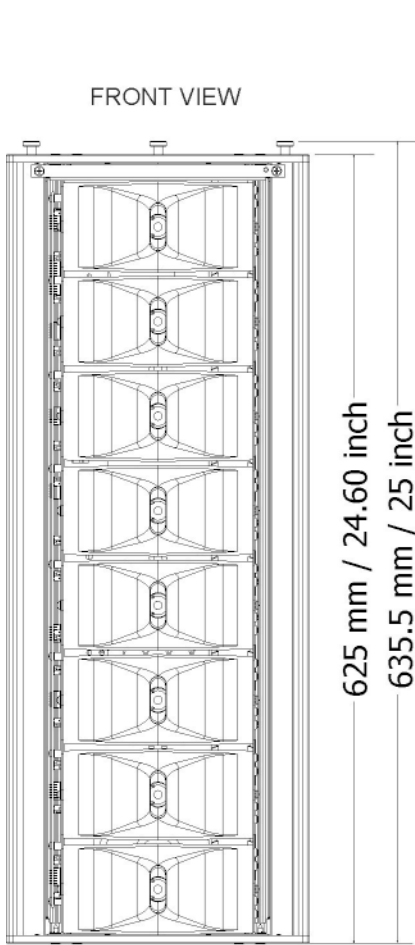
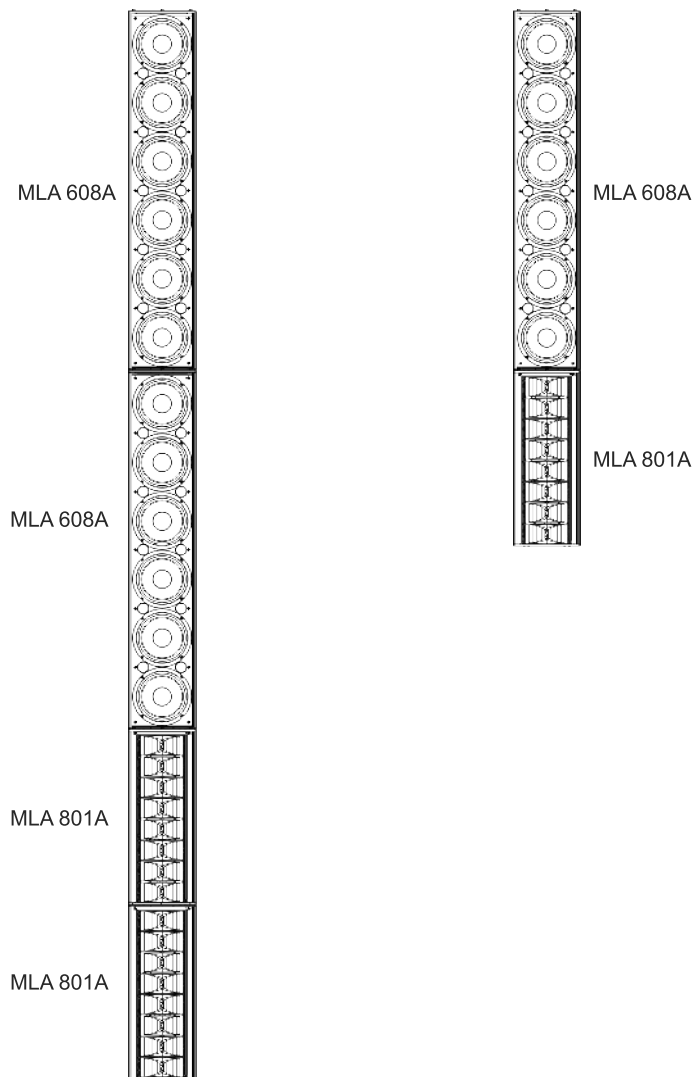TOP VIEW

The loudspeakers of the **VERTUS MLA** series must be installed by suspension using wall brackets.
Besides the main suspension system, all flying speakers in theatres, indoor stadiums or in several other work and/or leisure facilities shall be provided with an additional independent safety system with the adequate load capacity.

WARNING: carefully select the area where to install the speakers and make sure that the structure is adequate to support the weight of boxes. FBT will not be held responsible for any damage to persons or property in case of failure to comply with these instructions or failure to check the safety factor of all components involved in the installation system.

MLA 608A

MLA 608A

MLA 801A

MLA 801A

MLA 608A

MLA 801A

CONNECTION OF TWO COLUMNS

1

2

ANCHOR SLOTS

fig. A
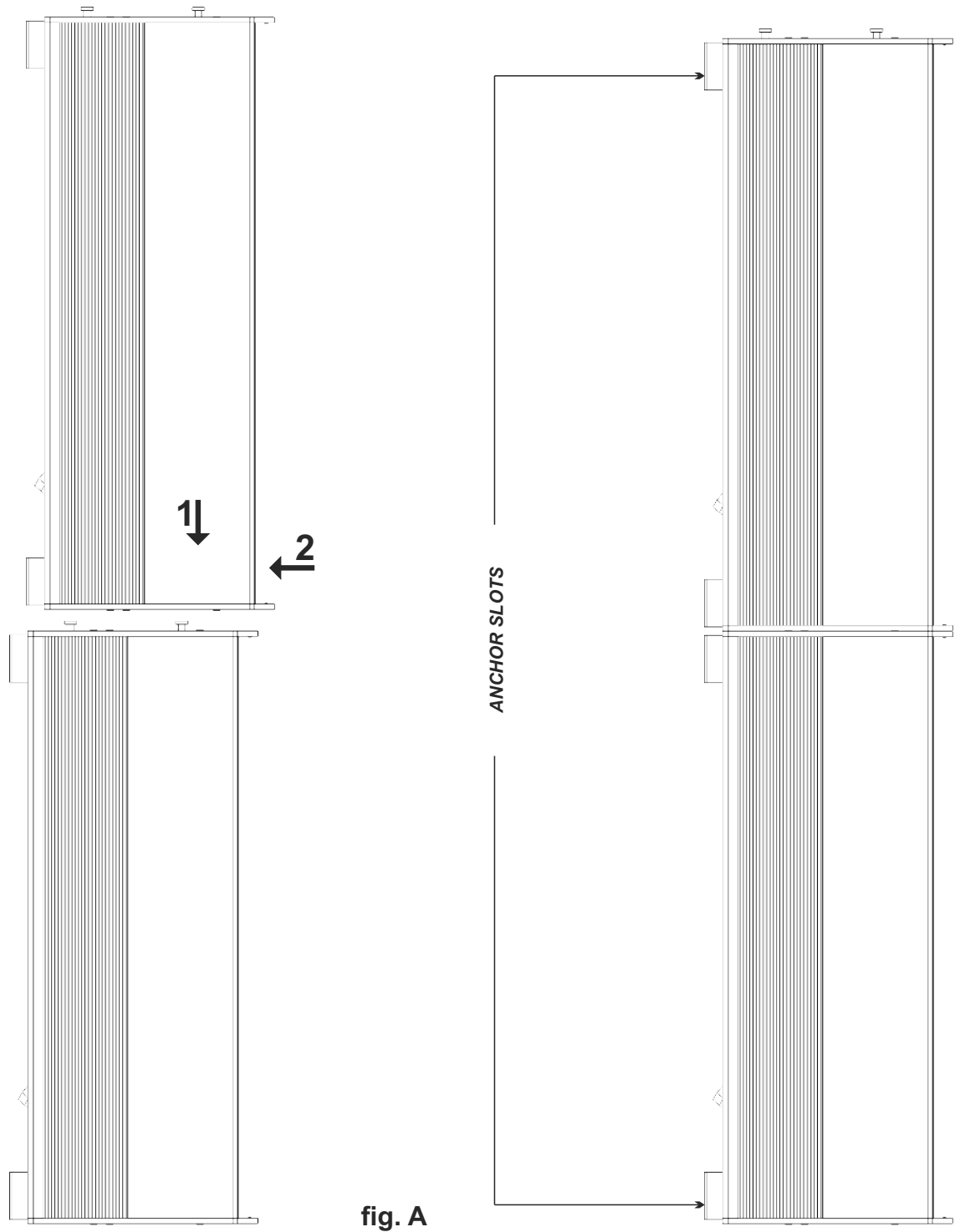
- *Connect the two satellites to one another as shown in picture "A".*
- *For wall mounting use adequate anchor slots.*

CONNECTION OF TWO COLUMNS

UPPER BRACKET ————————

fig. B

LOWER BRACKET ————————
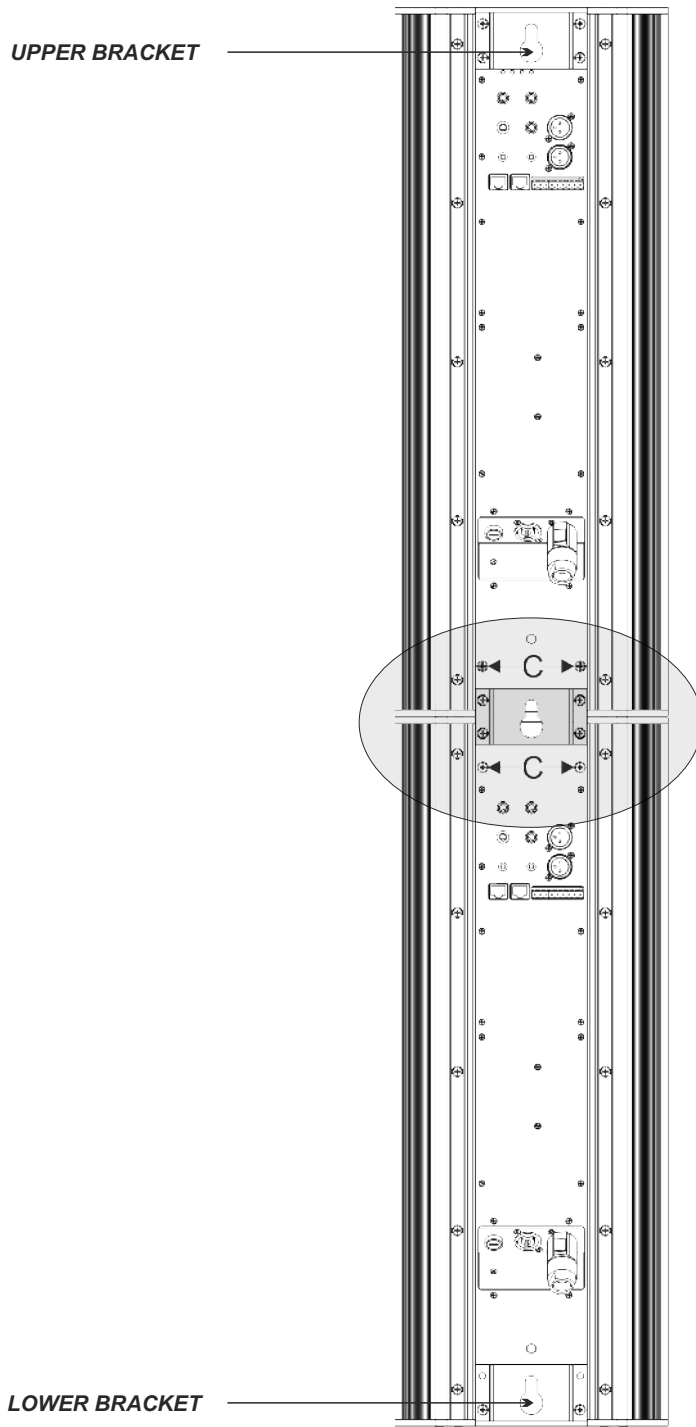
To fasten the two columns onto the wall use the upper and lower brackets. The central brackets must be removed and one of them used as safety fastening (see fig. B).
CAUTION: holes (C) let loose by the moving bracket must absolutely be closed with the relevant screws.

VERTOS
MLA 801A

ON: Indicates that the system is on.

PEAK/LIMIT: When the "peak" LED goes on, it indicates that the signal level is nearing saturation; the "limit" LED indicates that the temperature limiting circuits have triggered to prevent the system from overheating.

TILT NOT ALLOWED: indicates a "pointing" error; check the maximum allowed tilt of the sound band in the "allowed angle settings" table.

NETWORK ON: signals that connection to the network has been enabled.

TILT ANGLE: allows you to set the tilt angle of the sound beam. Negative angles conventionally refer to a sound beam tilted toward the lower part of the speaker; the maximum tilt limits of the sound beam associated to the covering angle are shown in the relevant table. If these values are exceeded, a pointing error will be signaled by the "TILT NOT ALLOWED" LED going on. The PC/SLAVE position brings the loudspeaker in data receiving mode, with the option of controlling it via the second speaker connected to it or via the relevant software on the PC.

BEAMWIDTH: allows you to select the opening angle of the sound beam; follow the limits listed in the table to properly program the system.

**VOLUME:** Adjusts the volume of the single loudspeaker.

PRESET: Selects 4 presets, each corresponding to a different equalization, based on the installation to be performed (FOH for installations in open field or WALL for fixed installations) and the use made of the system (FLAT for music or VOCAL for speech).

RESET: allows you to reset the internal memory that contains the data sent by the PC in a setup possibly configured previously. If performed in "stand-alone" mode with connected speakers, the reset control is also transmitted to the MLA 608A loudspeaker. We recommend that you perform a reset (pressing the relevant key or with the software) when shifting from using the system connected to the PC to "stand-alone" mode, so as to eliminate the possibility of any malfunctions.

GND LIFT: electrical switch for the electrical separation between the mass and ground circuits, in order to avoid possible mass "loops", which are the source of bothersome humming sound.

IN - LINK: Balanced input/output sockets; "IN" allows the connection of pre-amplified signal, such as for instance the one in output from a mixer. "LINK" allows you to connect multiple loudspeakers to the same signal. **USE "EUROBLOCK" SOCKETS FOR WALL CONNECTIONS.**

IN-NETWORK-OUT: see the description in the "CONNECTION OF LOUDSPEAKERS" section.
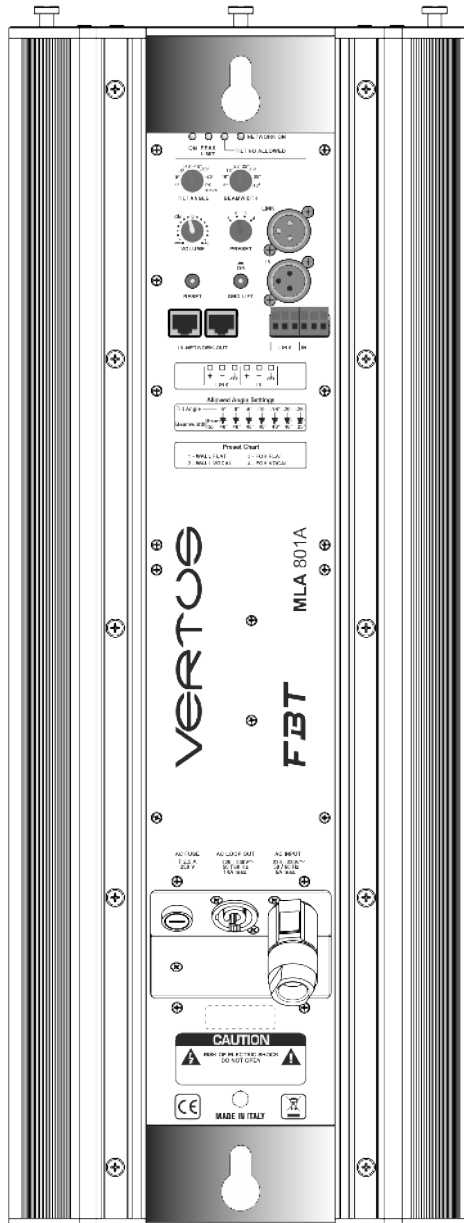
VERTUS
MLA 608A

ON: *Indicates that the system is on.*

PEAK/LIMIT: *When the "peak" LED goes on, it indicates that the signal level is nearing saturation; the "limit" LED indicates that the temperature limiting circuits have triggered to prevent the system from overheating.*

TILT NOT ALLOWED: *indicates a "pointing" error; check the maximum allowed tilt of the sound band in the "allowed angle settings" table.*

NETWORK ON: *signals that connection to the network has been enabled.*

TILT ANGLE: *allows you to set the tilt angle of the sound beam. Negative angles conventionally refer to a sound beam tilted toward the lower part of the speaker; the maximum tilt limits of the sound beam associated to the covering angle are shown in the relevant table. If these values are exceeded, a pointing error will be signaled by the "TILT NOT ALLOWED" LED going on. The PC/SLAVE position brings the loudspeaker in data receiving mode, with the option of controlling it via the second speaker connected to it or via the relevant software on the PC.*

BEAMWIDTH: *allows you to select the opening angle of the sound beam; follow the limits listed in the table to properly program the system.*

**VOLUME:** *Adjusts the volume of the single loudspeaker.*

PRESET: *Selects 4 presets, each corresponding to a different equalization, based on the installation to be performed (FOH for installations in open field or WALL for fixed installations) and the use made of the system (FLAT for music or VOCAL for speech).*

GND LIFT: *electrical switch for the electrical separation between the mass and ground circuits, in order to avoid possible mass "loops", which are the source of bothersome humming sound.*

HP FILTER: *selecting the control modifies the "hi-pass" filter to about 100Hz, thus allowing you to combine use of a subwoofer of the FBT SUBLINE series; in this case, to obtain the proper alignment of the signal delays of the MLA loudspeaker and sub, we recommend that you use the relevant "SUB OUT" signal output.*

IN - LINK - SUB OUT : *Balanced input/output sockets; "IN" allows you to connect a pre-amplified signal, such as for instance, the one in output from a mixer; "LINK" allows you to connect multiple loudspeakers to the same signal, while "SUB OUT" is used for connecting a subwoofer.* **USE "EUROBLOCK" SOCKETS FOR WALL CONNECTIONS.**

IN-NETWORK-OUT: *see the description in the "CONNECTION OF LOUDSPEAKERS" section.*
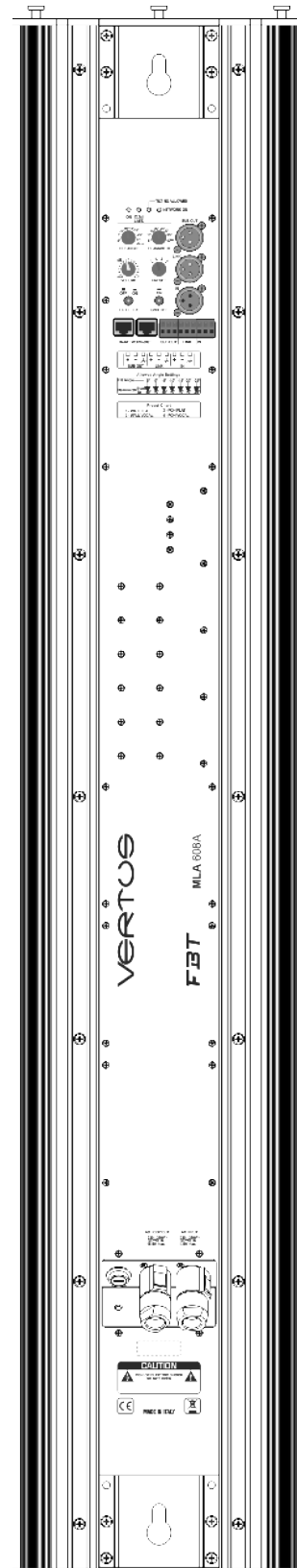
IN THE CONFIGURATION WITH MULTIPLE LOUDSPEAKERS CONNECTED, THE SELECTOR SWITCHES ALSO CONTROL THE "SLAVE" SPEAKER, EXCEPT FOR THE VOLUME, WHICH IS INDEPENDENT ON EACH SPEAKER.

- STAND-ALONE: using two standard Ethernet cables, connect the output of the first speaker (NETWORK OUT) to the input of the second one (NETWORK IN) and the output of the second to the input of the first. Once you have chosen the amplifier that will act as communication master, you must set the selector switch of the second speaker to position "PC/SLAVE"

- CONTROL FROM PC: the connection uses the RS485 protocol to send and receive data between the PC and speaker. The PC must be connected via a USB cable to the USB-RS485 converter and from thence to the first speaker (NETWORK IN) using a standard Ethernet cable. Connect the loudspeakers in succession with Ethernet cables (from NETWORK OUT to NETWORK IN) and place the relevant RJ45 bridge on the output of the last speaker.

The succession of the speakers, starting with the first one identifiable on the software as the speaker adjacent to the "FRAME", must follow the order of the system as designed on the PC.

The software does not currently support multiple interconnected systems; if multiple systems are installed, you must individually program each one, one at a time (see "TAB NETWORK" section) of the LINE ARRAY MANAGEMENT SOFTWARE manual) .

Connection to the PC, besides the supplied converter (see page 19), requires the drivers necessary for the peripheral devices to function properly. The drivers are available directly on the www.ftdichip .com website; to properly install the converter, refer to the instructions available at the following link:
*http://www.ftdichip.com/Documents/InstallGuides.htm*

An MLA system includes at least one MLA608A for mid-low frequencies and one MLA801A for high frequencies. The whole system can be controlled either manually, using the selector switches on the rear of every sound diffuser, or by connecting the sound system to the PC.

SYSTEM CONNECTION
*Use an USB cable to connect the PC to the USB-RS485 converter, and then connect the latter to the first loudspeaker (NETWORK IN) with a standard Ethernet cable. Connect the loudspeakers in sequence using Ethernet cables (NETWORK OUT to NETWORK IN) and place on the last loudspeaker output the proper RJ45 bridge provided together with the MLA801A sound diffuser. **The sequence of loudspeakers shall match the order of the system programmed on the PC, starting from the first loudspeaker detected by the software as adjacent to the FRAME.** The software does not currently support multiple interconnected systems; if more than one system is installed, each system shall be programmed individually. Therefore, only one converter per installation will be required.*

CODE: F36959

STAND ALONE

CONTROL FROM PC

17
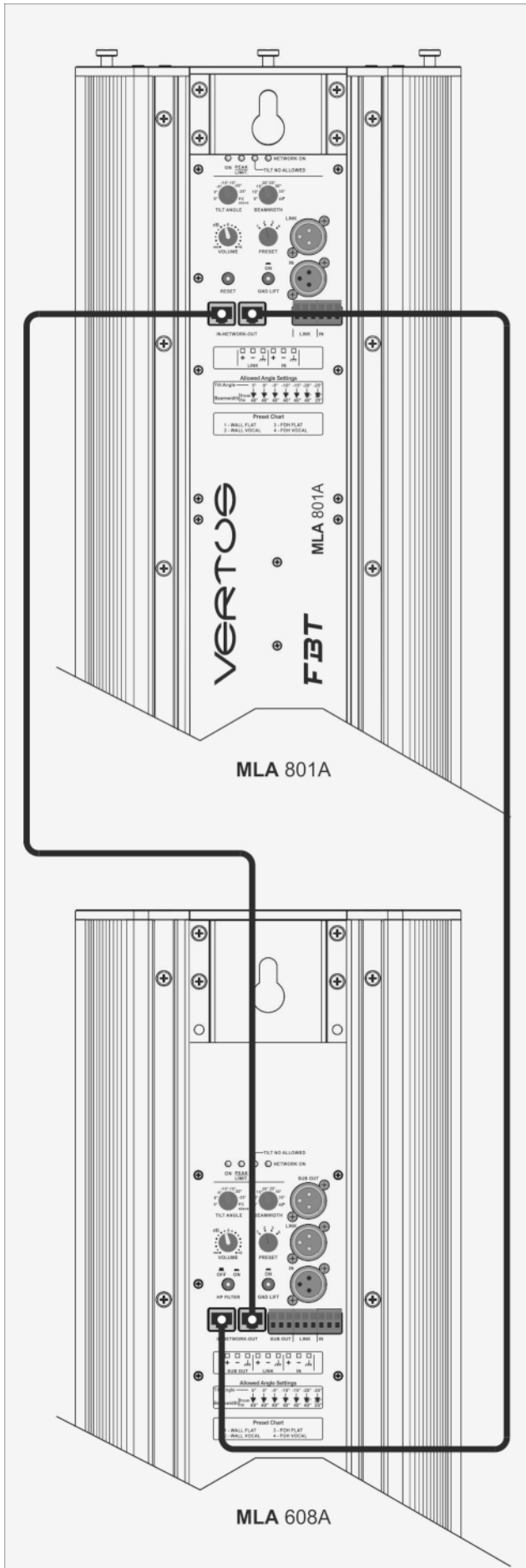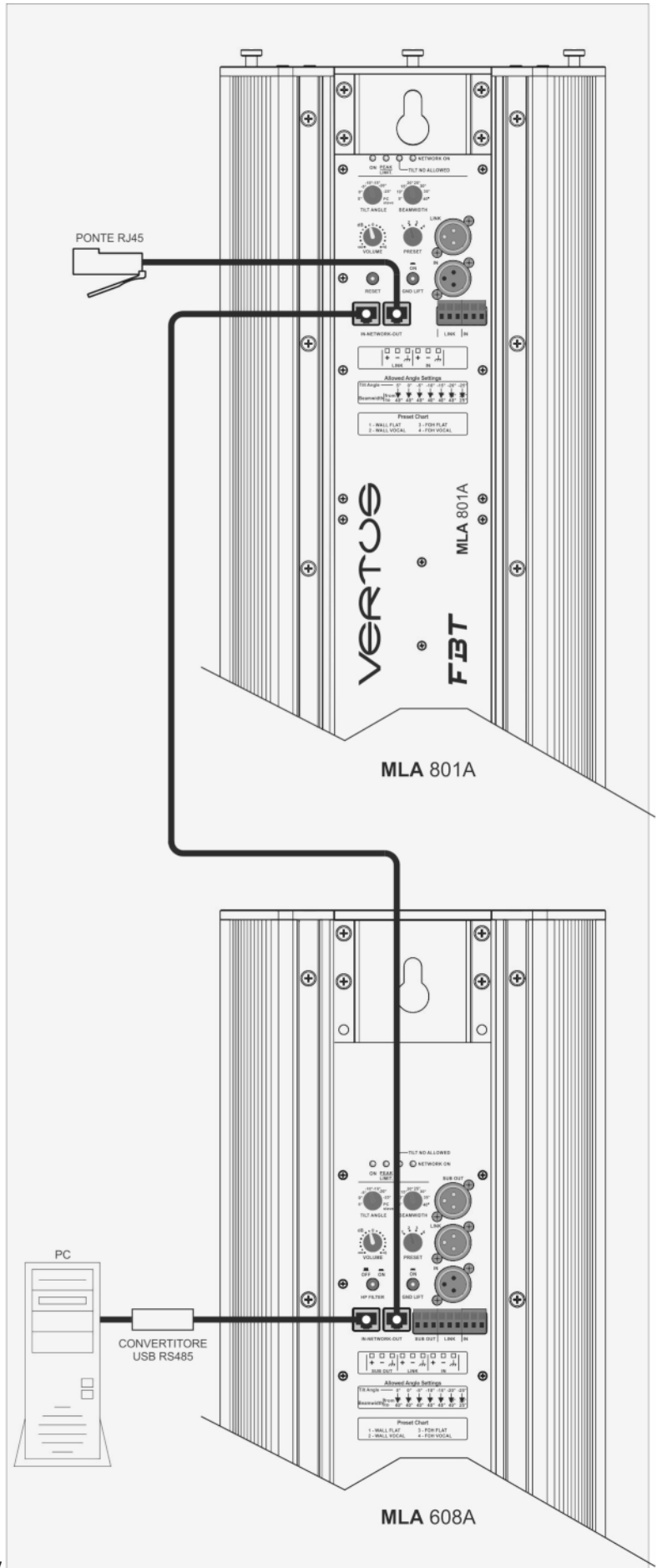
TECHNICAL SPECIFICATIONS

		MLA 801A	**MLA 608A**
CONFIGURATION	way	8	6
BUILT-IN AMPLIFIER CONT. RMS LF/HF	watt	8 x 40	6 x 230
BUILT-IN AMPLIFIER MAX. RMS LF/HF	watt	8 x 50	6 x 250
BUILT-IN AMPLIFIER MAX. PEAK LF/HF	watt	8 x 100	6 x 500
FREQUENCY RESPONSE	@-6dB	1.8kHz - 20kHz	60Hz - 2kHz
LOW FREQUENCY WOOFER	inch	----------	6 x 8" - 2" coil
HIGH FREQUENCY DRIVER	inch	8 x 0.75" - 1" coil	----------
MAX. SPL CONT/PEAK	dB	135 / 139	133 / 137
DISPERSION	H x V	90° digital/mechanical controlled	90° digital controlled
INPUT IMPEDANCE	kOhm	22	22
CROSSOVER FREQUENCY	kHz	1.8	1.8
AC POWER REQUIREMENT	VA	300	1350
INPUT CONNECTORS		XLR with loop	XLR with loop / Sub Out
POWER CORD	ft.	16.4	16.4
NET DIMENSIONS (WxHxD)	inch	9.5 x 24.6 x 9.52	9.5 x 50.6 x 9.52
NET WEIGHT	lb	39.7	59.5
TRANSPORT DIMENSIONS (WxHxD)	inch	12.6 x 28.54 x 12.67	12.6 x 54.5 x 12.67
TRANSPORT WEIGHT	lb	45.2	68.4

WARNING: where affixed on the equipment or package, the barred waste bin sign indicates that the product must be separated from other waste at the end of its working life for disposal. At the end of use, the user must deliver the product to a suitable recycling centre or return it to the dealer when purchasing a new product. Adequate disposal of the decommissioned equipment for recycling, treatment and environmentally compatible disposal contributes in preventing potentially negative effects on the environment and health and promotes the reuse and/or recycling of equipment materials. Abusive product disposal by the user is punishable by law with administrative sanctions.

CODE 35546#12.2011

All informations included in this operating manual have been scrupulously controlled; however FBT is not responsible for eventual mistakes. FBT Elettronica SpA has the right to amend products and specifications without notice.