

Designed, Engineered
and Manufactured in ITALY

FBT



VERVE

Speaker Systems

ENGLISH

FBT elettronica SpA

Via Paolo Soprani 1 - Zona Ind.le Squartabue - 62019 RECANATI - ITALY Tel. 071 750591 - Fax. 071 7505920 - email: info@fbt.it - www.fbt.it

INDEX

INTRODUCTION	1
PRECAUTIONS	2
GENERAL FEATURES	3 / 4 / 5 / 6 / 7 / 8 / 9
ROTATABLE HORN	10
DIMENSIONS	11 / 12
CONNECTORS	13
POWER SUPPLY	14
ACCESSORIES	15 / 16
INSTALLATION	17
INSTALLATION MODE	18 / 19 / 20 / 21
CONTROLS AND FUNCTIONS	22 / 23
PRESET	24
CONNECTION EXAMPLES	25
TECHNICAL SPECIFICATIONS	26 / 27

INTRODUCTION

The new **VERVE** speakers series features birch plywood enclosures with a scratch resistant textured paint finish, entirely "Made in Italy".

New high efficiency PWM and very light yet powerful Class D integrated amplifiers, a new digital signal processor with 4 EQ. presets with an extremely low noise floor.

VERVE speakers are equipped with constant directivity rotatable horns, high efficiency woofers and HF compression drivers, higher quality protected crossover networks.

Available in 5 bi-amplified active, 5 passive models and 2 coaxial bi-amplified stage monitors.

To extend the low frequency response **VERVE** speakers can be matched with **FBT SUBline** subwoofers, available in 12", 15", 18" models.

VERVE series is also available in white color.



VERVE 212A
VERVE 212



VERVE 115A
VERVE 115



VERVE 112A
VERVE 112



VERVE 110A
VERVE 110



VERVE 108A
VERVE 108



VERVE 115mA
VERVE 115m



VERVE 112mA
VERVE 112m



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.

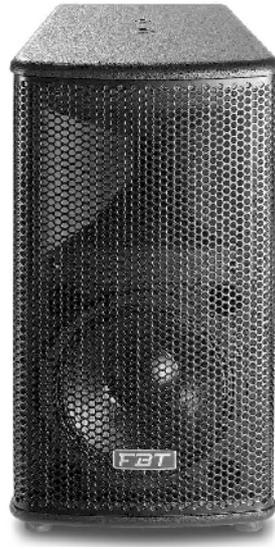


THE DEVICE MUST BE CONNECTED TO THE MAINS THROUGH A POWER OUTLET WITH A PROTECTIVE EARTH CONNECTION.

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.

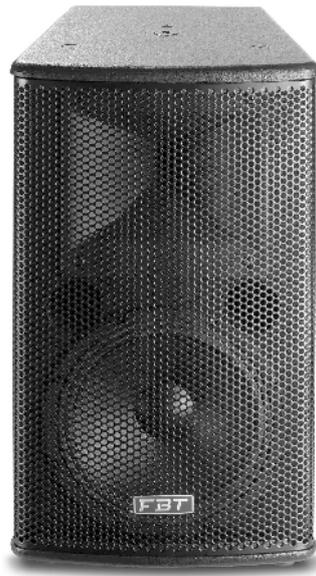


VERVE 108A

- 2-way bi-amplified bass reflex design
- 8" LF woofer with 2" voice coil, custom made for FBT
- 1" exit throat B&C HF compression driver with 1.4" v.c.
- 80°H x 50°V constant directivity horn
- DSP with 4 equalization presets
- Switch mode power supply
- Balanced XLR/Jack input & link out
- 16.4 ft. power cord
- 0.59" birch plywood enclosure
- 1.37" top-hat speaker stand socket
- Wall bracket mount flange plate
- Control panel with XLR/Jack IN, XLR out, Volume, Preset, HP filter, Switch mic/line, 3 status led indicators (prt/lmt, on, peak).

VERVE 108

- 2-way passive system
- 8" LF woofer with 2" voice coil, custom made for FBT
- 1" exit throat B&C HF compression driver with 1.4" v.c.
- 80°H x 50°V constant directivity horn
- Built-in passive crossover with soft-trip protection for the LF woofer and HF driver
- Speakon NL-4 IN & link OUT connectors
- 0.59" birch plywood enclosure
- 1.37" top-hat speaker stand socket
- Wall bracket mount flange plate

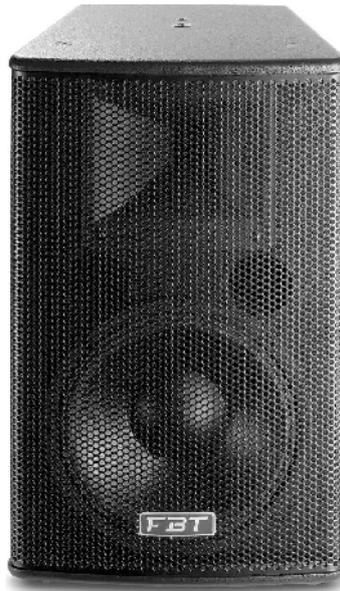


VERVE 110A

- 2-way bi-amplified bass reflex design
- 10" LF woofer with 2" voice coil
- 1" exit throat B&C HF compression driver with 1.4" v.c.
- 80°H x 50°V constant directivity horn
- DSP with 4 equalization presets
- Switch mode power supply
- Balanced XLR/Jack input & link out
- 16.4 ft. power cord
- 0.59" birch plywood enclosure
- 1.37" top-hat speaker stand socket
- Wall bracket mount flange plate
- 6 x M10 suspension points
- Control panel with XLR/Jack IN, XLR out, Volume, Preset, HP filter, Switch mic/line, 3 status led indicators (prt/lmt, on, peak).

VERVE 110

- 2-way passive system
- 10" LF woofer with 2" voice coil
- 1" exit throat B&C HF compression driver with 1.4" v.c.
- 80°H x 50°V constant directivity horn
- Built-in passive crossover with soft-trip protection for the LF woofer and HF driver
- Speakon NL-4 IN & link OUT connectors
- 0.59" birch plywood enclosure
- 1.37" top-hat speaker stand socket
- Wall bracket mount flange plate
- 6 x M10 suspension points

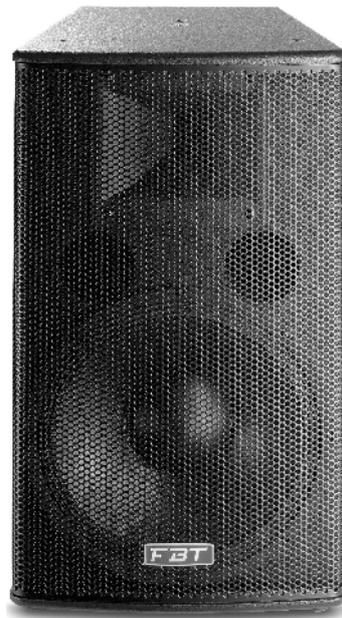


VERVE 112A

- 2-way bi-amplified bass reflex design
- 12" LF woofer with 2.5" voice coil
- 1" exit throat B&C HF compression driver with 1.4" v.c.
- 80°H x 50°V constant directivity horn
- DSP with 4 equalization presets
- Switch mode power supply
- Balanced XLR/Jack input & link out
- 16.4 ft. power cord
- 0.59" birch plywood enclosure
- 1.37" top-hat speaker stand socket
- Wall bracket mount flange plate
- 6 x M10 suspension points
- Control panel with XLR/Jack IN, XLR out, Volume, Preset, HP filter, Switch mic/line, 3 status led indicators (prt/lmt, on, peak).

VERVE 112

- 2-way passive system
- 12" LF woofer with 2.5" voice coil
- 1" exit throat B&C HF compression driver with 1.4" v.c.
- 80°H x 50°V constant directivity horn
- Built-in passive crossover with soft-trip protection for the LF woofer and HF driver
- Speakon NL-4 IN & link OUT connectors
- 0.59" birch plywood enclosure
- 1.37" top-hat speaker stand socket
- Wall bracket mount flange plate
- 6 x M10 suspension points

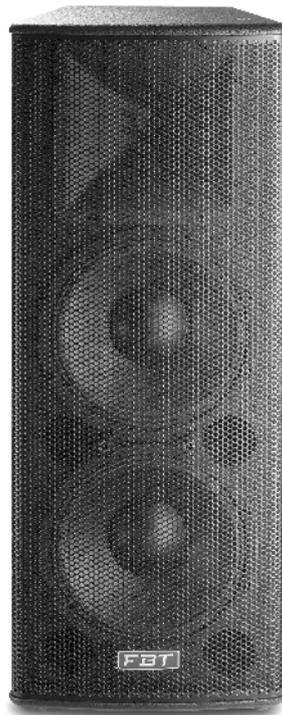


VERVE 115A

- 2-way bi-amplified bass reflex design
- 15" LF woofer with 2.5" voice coil
- 1" exit throat B&C HF compression driver with 1.4" v.c.
- 80°H x 50°V constant directivity horn
- DSP with 4 equalization presets
- Switch mode power supply
- Balanced XLR/Jack input & link out
- 16.4 ft. power cord
- 0.59" birch plywood enclosure
- 1.37" top-hat speaker stand socket
- Wall bracket mount flange plate
- 6 x M10 suspension points
- Control panel with XLR/Jack IN, XLR out, Volume, Preset, HP filter, Switch mic/line, 3 status led indicators (prt/lmt, on, peak).

VERVE 115

- 2-way passive system
- 15" LF woofer with 2.5" voice coil
- 1" exit throat B&C HF compression driver with 1.4" v.c.
- 80°H x 50°V constant directivity horn
- Built-in passive crossover with soft-trip protection for the LF woofer and HF driver
- Speakon NL-4 IN & link OUT connectors
- 0.59" birch plywood enclosure
- 1.37" top-hat speaker stand socket
- Wall bracket mount flange plate
- 6 x M10 suspension points



VERVE 212A

- 2-way bi-amplified bass reflex design
- 2 x 12" LF woofer with 2.5" voice coil
- 1.4" exit throat B&C HF compression driver with 2.5" v.c.
- 70°H x 50°V constant directivity horn
- DSP with 4 equalization presets
- Switch mode power supply
- Balanced XLR/Jack input & link out
- 16.4 ft. power cord
- 0.59" birch plywood enclosure
- 1.37" top-hat speaker stand socket
- Wall bracket mount flange plate
- 6 x M10 suspension points
- Control panel with XLR/Jack IN, XLR out, Volume, Preset, HP filter, Switch mic/line, 3 status led indicators (prt/lmt, on, peak).

VERVE 212

- 2-way passive system
- 2 x 12" LF woofer with 2.5" voice coil
- 1.4" exit throat B&C HF compression driver with 2.5" v.c.
- 70°H x 50°V constant directivity horn
- Built-in passive crossover with soft-trip protection for the LF woofer and HF driver
- Speakon NL-4 IN & link OUT connectors
- 0.59" birch plywood enclosure
- 1.37" top-hat speaker stand socket
- Wall bracket mount flange plate
- 6 x M10 suspension points

GENERAL FEATURES



VERVE 112mA

- Coaxial 2-way bi-amplified bass reflex design
- 12" LF woofer with 2.5" voice coil
- 1" exit throat B&C HF compression driver with 1.7" v.c.
- 90° dispersion
- DSP with 4 equalization presets
- Switch mode power supply
- Balanced XLR/Jack input & link out
- 16.4 ft. power cord
- 0.59" birch plywood enclosure
- 1.37" top-hat speaker stand socket
- Wall bracket mount flange plate
- Control panel with XLR/Jack IN, XLR out, Volume, Preset, HP filter, Switch mic/line, 3 status led indicators (prt/lmt, on, peak).

VERVE 112m

- Coaxial 2-way pasive system
- 12" LF woofer with 2.5" voice coil
- 1" exit throat B&C HF compression driver with 1.7" v.c.
- 90° dispersion
- Built-in passive crossover with soft-trip protection for the LF woofer and HF driver
- Speakon NL-4 IN & link OUT connectors
- 0.59" birch plywood enclosure
- 1.37" top-hat speaker stand socket
- Wall bracket mount flange plate

GENERAL FEATURES



VERVE 115mA

- Coaxial 2-way bi-amplified bass reflex design
- 15" LF woofer with 2.5" voice coil
- 1" exit throat B&C HF compression driver with 1.7" v.c.
- 90° dispersion
- DSP with 4 equalization presets
- Switch mode power supply
- Balanced XLR/Jack input & link out
- 16.4 ft. power cord
- 0.59" birch plywood enclosure
- 1.37" top-hat speaker stand socket
- Wall bracket mount flange plate
- Control panel with XLR/Jack IN, XLR out, Volume, Preset, HP filter, Switch mic/line, 3 status led indicators (prt/lmt, on, peak).

VERVE 115m

- Coaxial 2-way pasive system
- 15" LF woofer with 2.5" voice coil
- 1" exit throat B&C HF compression driver with 1.7" v.c.
- 90° dispersion
- Built-in passive crossover with soft-trip protection for the LF woofer and HF driver
- Speakon NL-4 IN & link OUT connectors
- 0.59" birch plywood enclosure
- 1.37" top-hat speaker stand socket
- Wall bracket mount flange plate

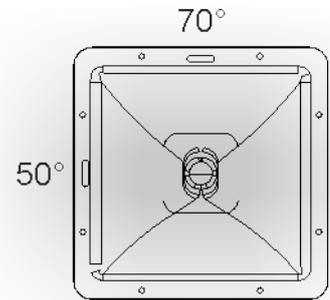
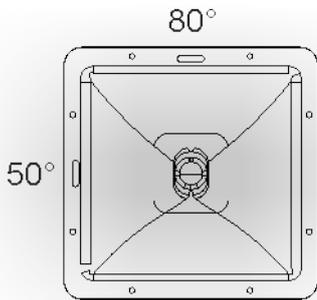
ROTATABLE HORN

The VERVE 108/108A, 110/110A, 112/112A, 115/115A, 212/212A models feature a constant directivity rotatable horn. The constant directivity horn permits getting a response whose frequency is almost constant in every direction covered by horn operation and a balanced sound timbre emission over the whole coverage angle. Horn rotation changes the dispersion angle so as to use the speakers in horizontal position or when they are aligned in a array.

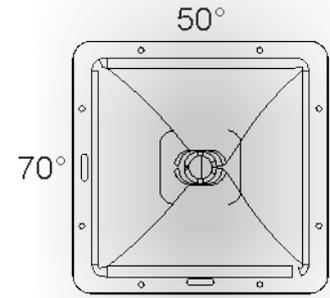
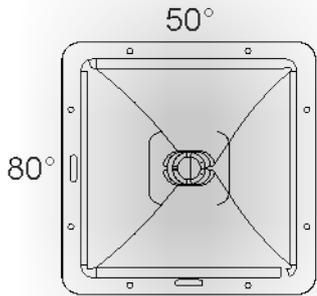
VERVE 108 A / 108
VERVE 110 A / 110
VERVE 112 A / 112
VERVE 115 A / 115

VERVE 212 A / 212

HORN COVERAGE ANGLE

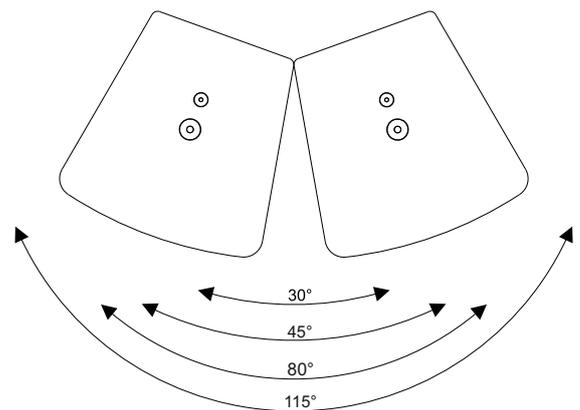
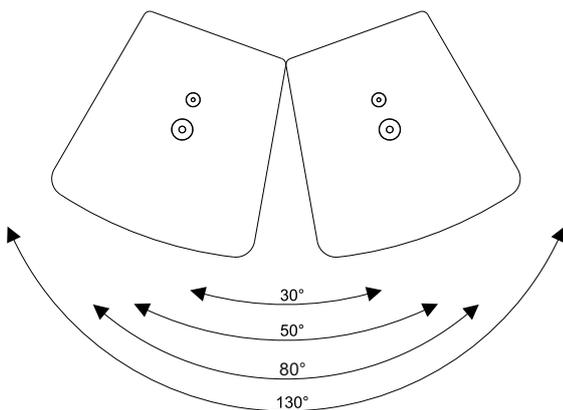


ROTATED HORN COVERAGE ANGLE



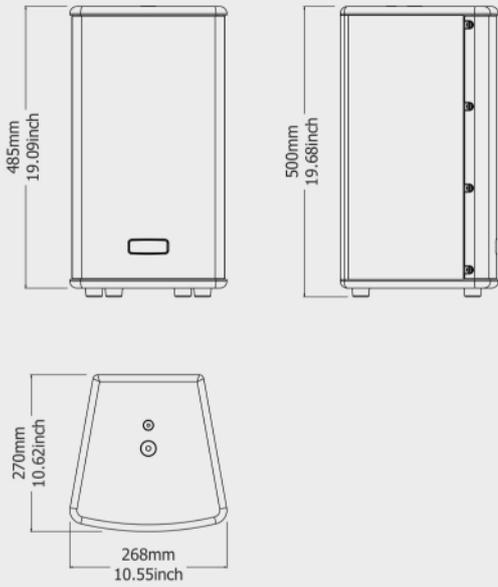
30° ---- with 50° horn position
 50° ---- with 80° horn position
 80° ---- total coverage with 50° horn position
 130° ---- total coverage with 80° horn position

30° ---- with 50° horn position
 45° ---- with 70° horn position
 80° ---- total coverage with 50° horn position
 115° ---- total coverage with 70° horn position

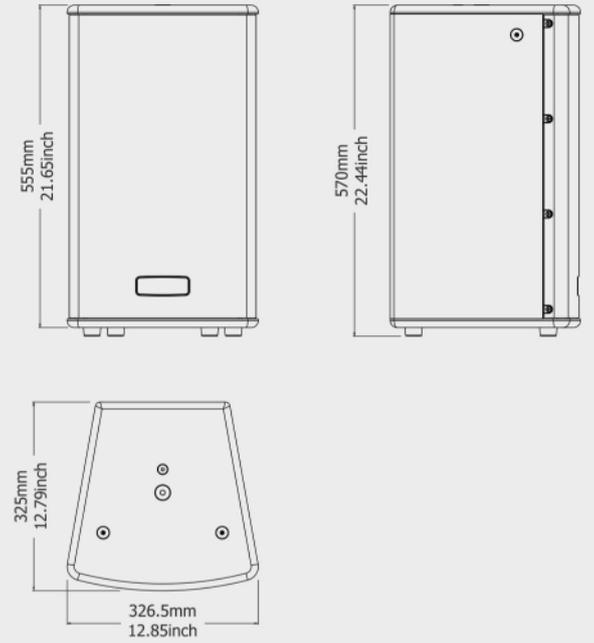


DIMENSIONS

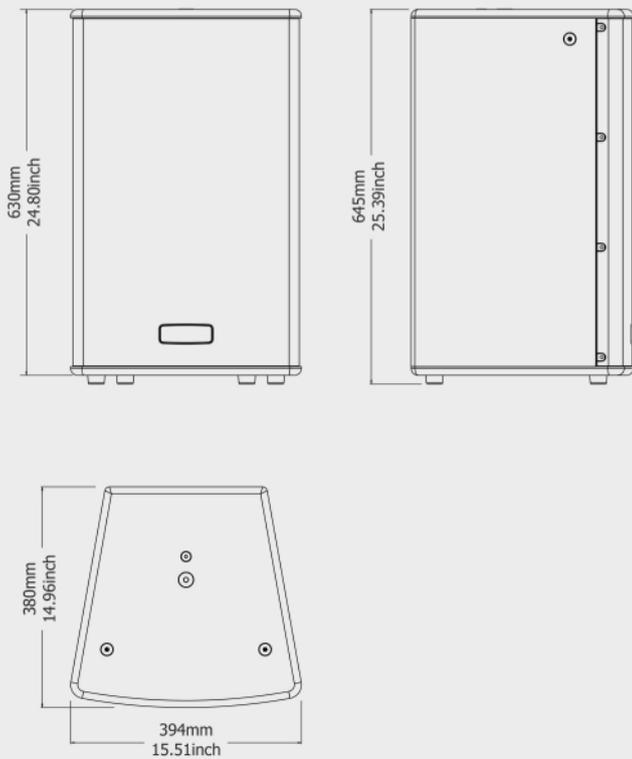
VERVE 108 A / 108



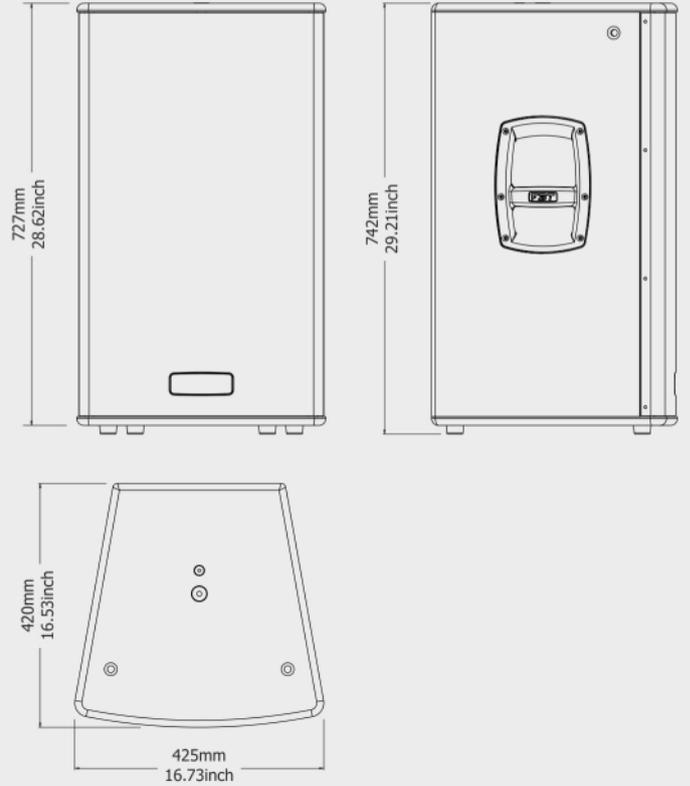
VERVE 110 A / 110



VERVE 112 A / 112

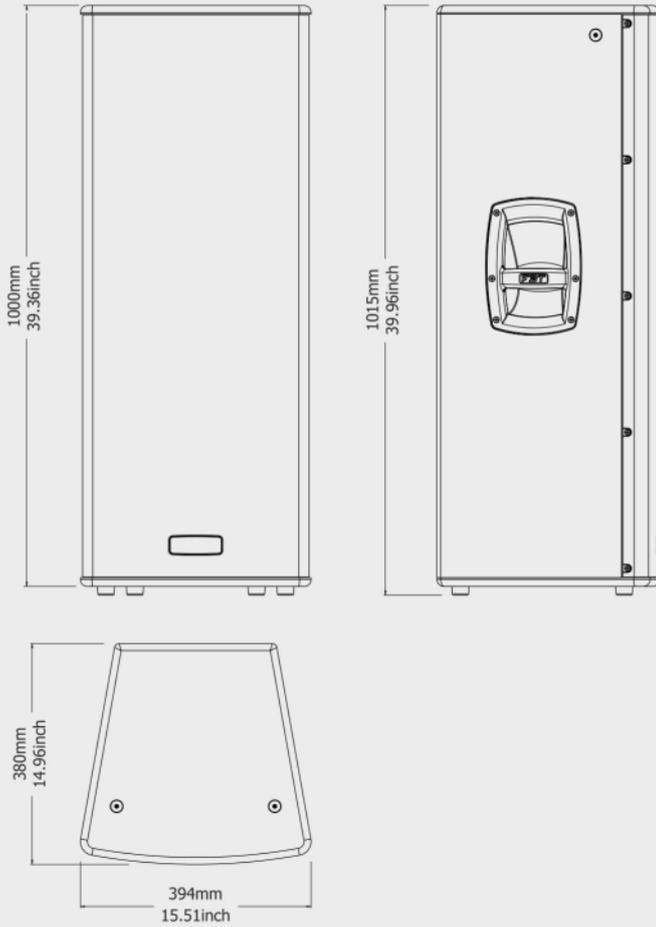


VERVE 115 A / 115

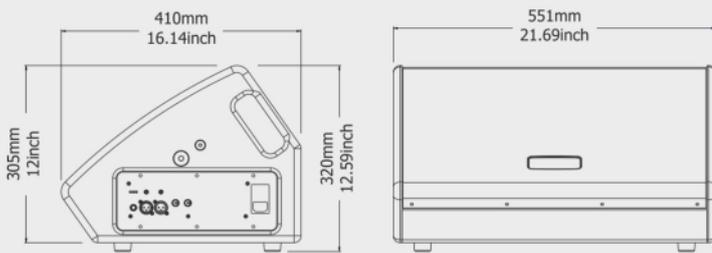


DIMENSIONS

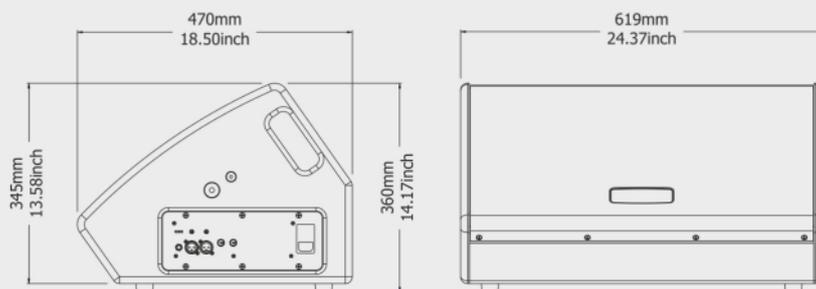
VERVE 212 A / 212



VERVE 112mA / 112m



VERVE 115mA / 115m

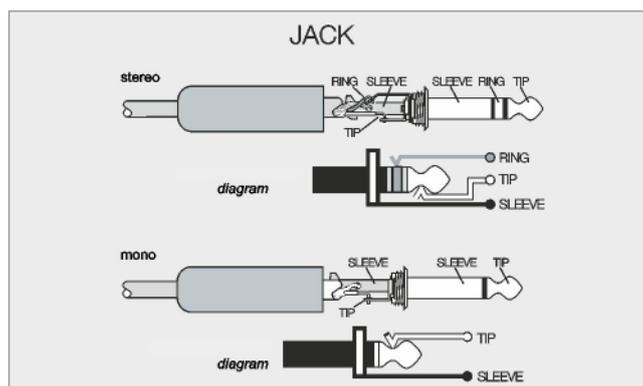
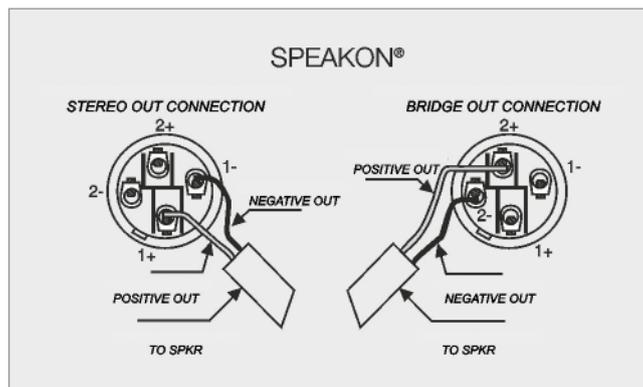
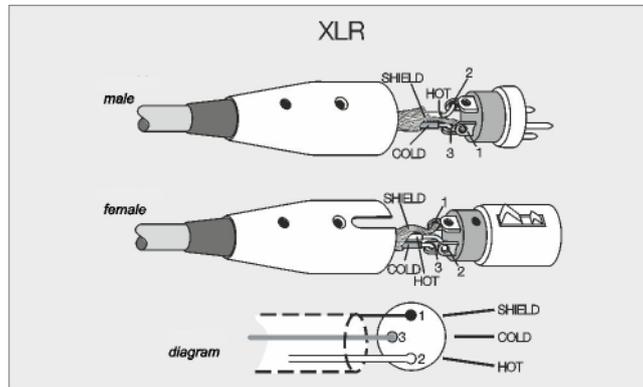


CONNECTORS

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.

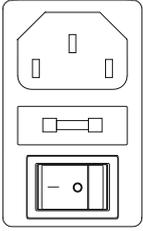
The **JACKS** are typical connectors for the transporting of two separate signals through two channels, left and right, using a single connector and therefore they can be either mono or stereo. Mono jacks (TS) also known as unbalanced jacks, are recognisable from stereo or balanced jacks (TRS) by their 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.



POWER SUPPLY

Before connecting the apparatus to the mains, make sure the supply voltage matches the one indicated on the back of the apparatus. The power socket also includes a fuse box . Faulty fuses shall be replaced only with fuses having the same electrical features and value.

VERVE 108 A

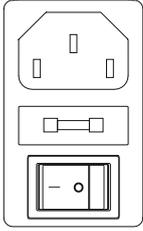


220-230V~ 50/60Hz
T2.5AL - 250V
450VA

220-230V

120V
120V~ 60Hz
T5AH - 250V
450VA

VERVE 110 A

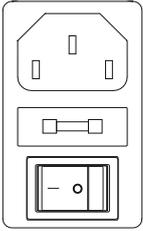


220-230V~ 50/60Hz
T2.5AL - 250V
450VA

220-230V

120V
120V~ 60Hz
T5AH - 250V
450VA

VERVE 112 A

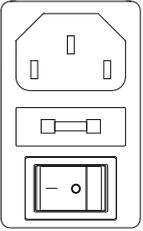


220-230V~ 50/60Hz
T2.5AL - 250V
450VA

220-230V

120V
120V~ 60Hz
T5AH - 250V
450VA

VERVE 115 A

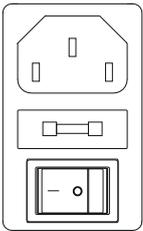


220-230V~ 50/60Hz
T2.5AL - 250V
450VA

220-230V

120V
120V~ 60Hz
T5AH - 250V
450VA

VERVE 212 A

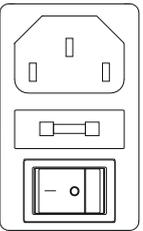


220-230V~ 50/60Hz
T2.5AL - 250V
450VA

220-230V

120V
120V~ 60Hz
T5AH - 250V
450VA

VERVE 112M A

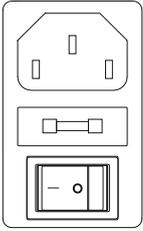


220-230V~ 50/60Hz
T2.5AL - 250V
450VA

220-230V

120V
120V~ 60Hz
T5AH - 250V
450VA

VERVE 115M A



220-230V~ 50/60Hz
T2.5AL - 250V
450VA

220-230V

120V
120V~ 60Hz
T5AH - 250V
450VA

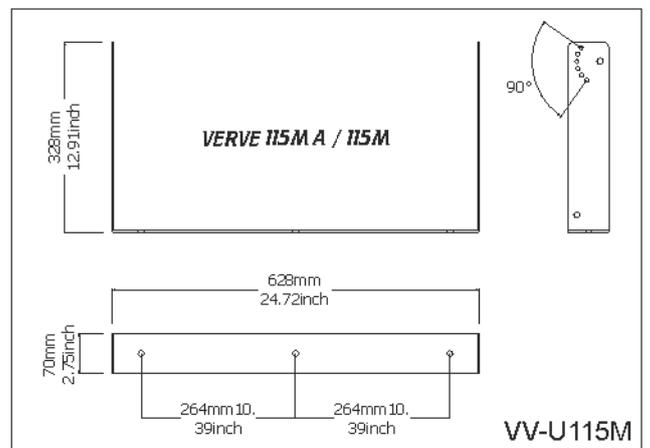
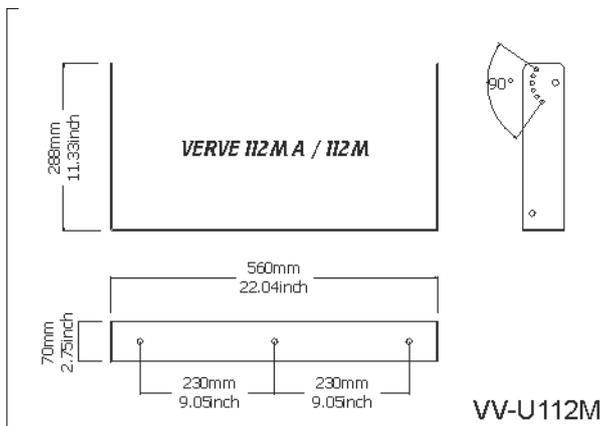
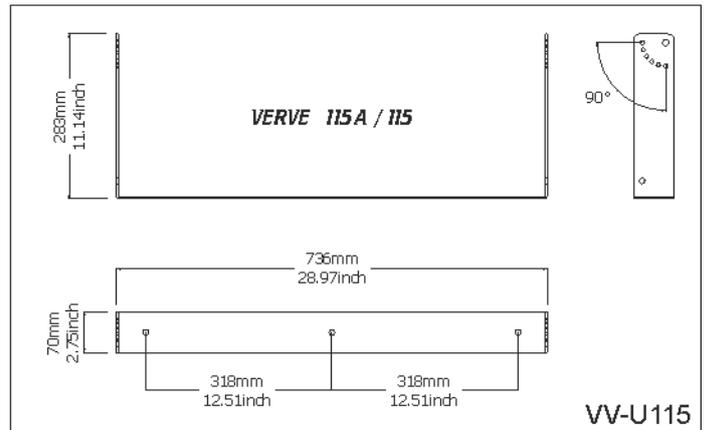
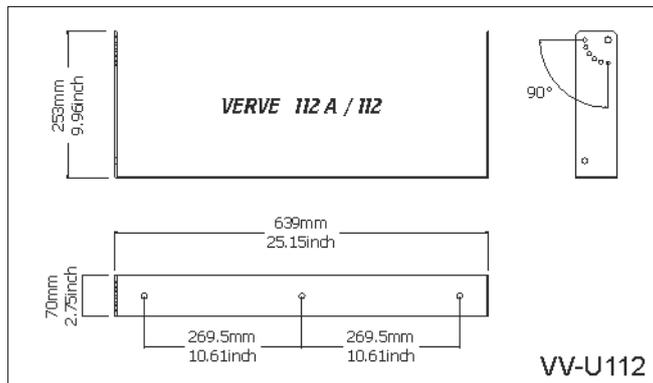
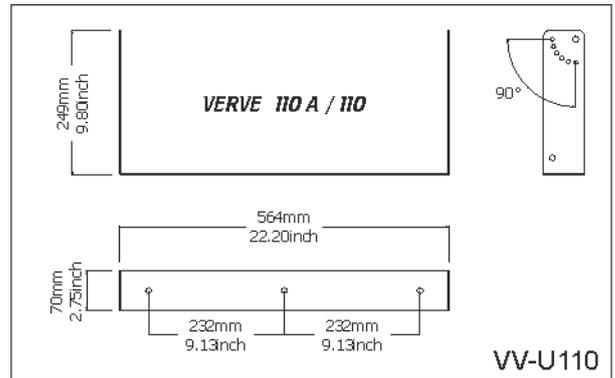
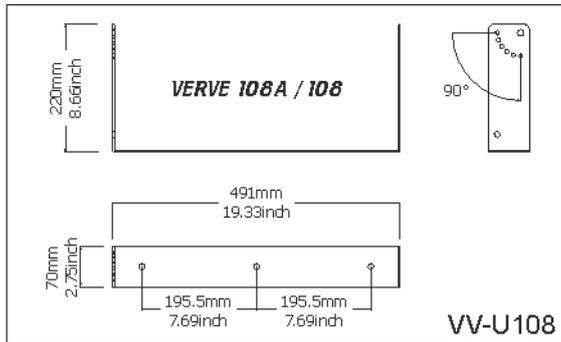
ACCESSORIES

VERVE speakers can be installed as follow:

- >Suspension by wall bracket
- >Installation on tripod stand
- >Installation with adjustable wall support
- >Simple stack installation

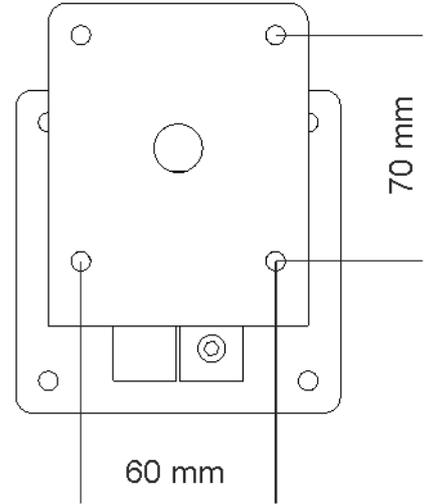
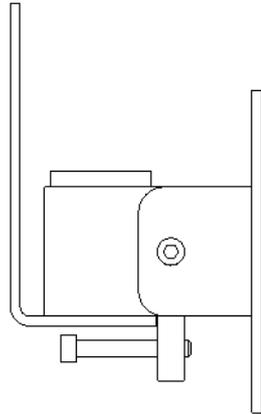
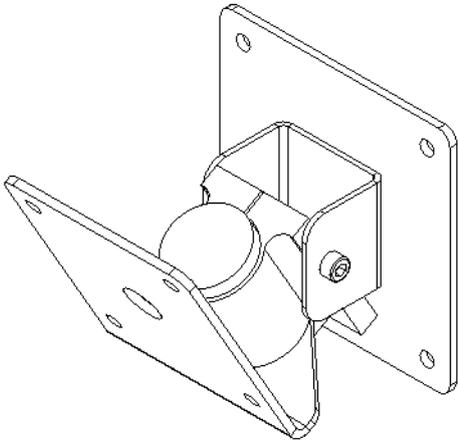
The VERVE speakers use only with FBT mount for wall installation.

USE WITH OTHER MOUNTS IS CAPABLE OF RESULTING IN INSTABILITY CAUSING POSSIBLE INJURY.



ACCESSORIES

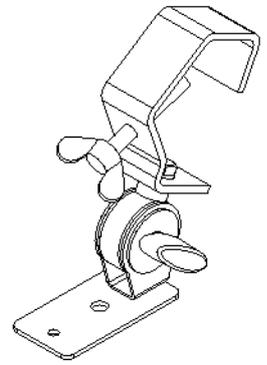
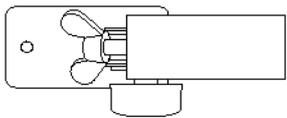
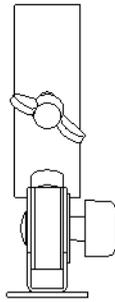
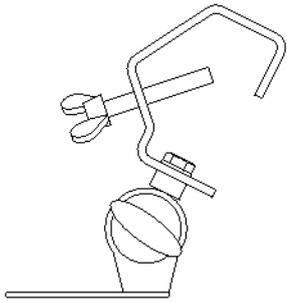
VV-W108



VERVE 108 A / 108

SWINGING WALL SUPPORT

VV-CO108



VERVE 108 A / 108

ADJUSTABLE TRUSS CLAMP

INSTALLATION



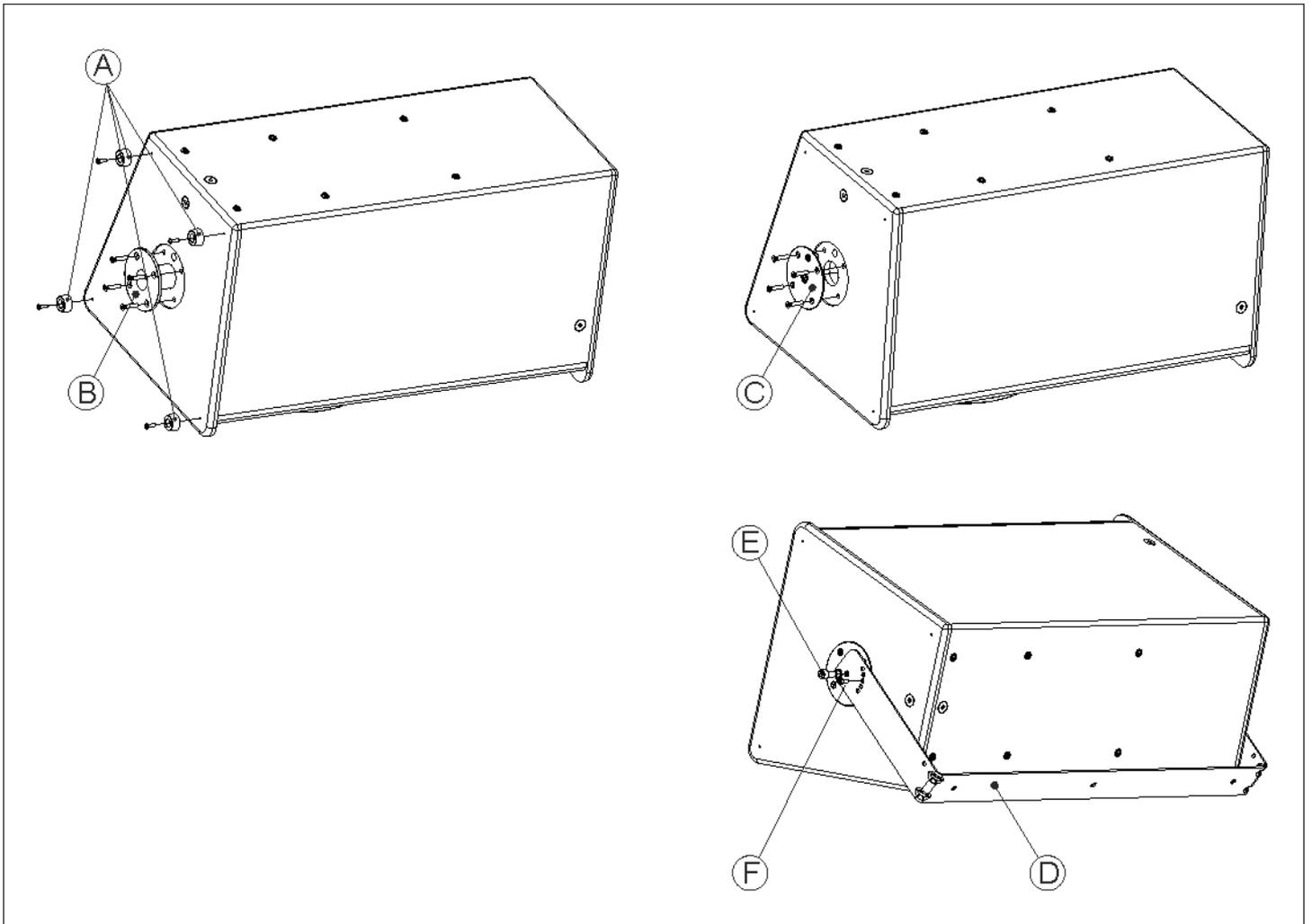
- VERVE sound speakers must be installed using the flying accessories described in this manual and following the special assembly instructions by qualified staff only, strictly complying with the current regulations and safety standards in force in the country of installation.
- FBT flying accessories are manufactured for their exclusive use with VERVE systems and have not been designed for being used with any other speaker or device.
- Any possible elements of the ceiling, floor or further supports where VERVE systems are to be installed shall be able to safely bear the load.
- The flying accessories in use are to be coupled and secured safely to both the sound speaker and the ceiling (or the other support).
- When components are fitted to ceilings, floors or beams, always make sure that all couplers and fixing elements are properly sized and have an adequate load capacity.
- 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. Only steel cables and chains with certified load capacity can be used as an additional safety device.

FBT Elettronica SpA accepts no responsibilities for any possible damages or injuries due to the use of supports or structures not strong enough or due to wrong installation.

INSTALLATION MODES

SUSPENSION BY WALL BRACKET

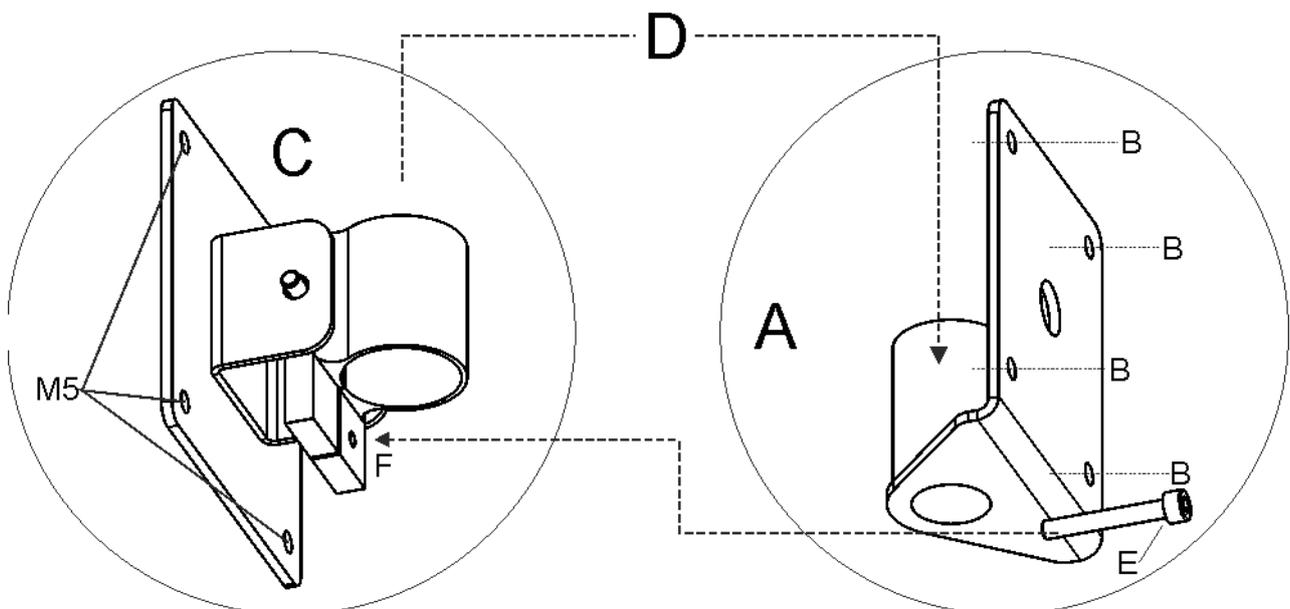
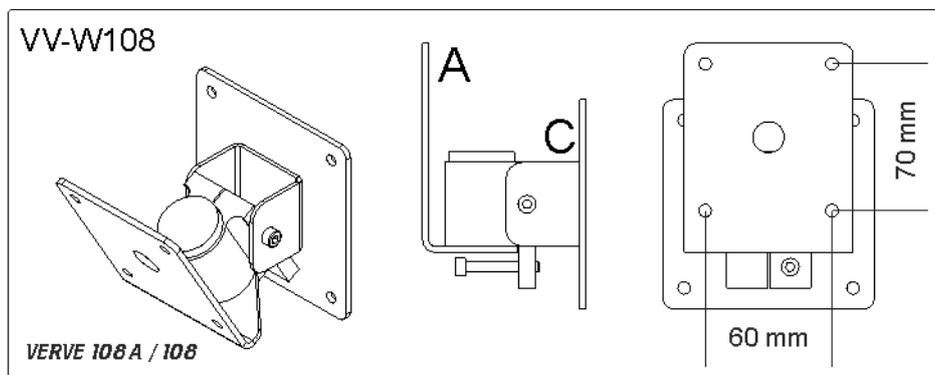
- > Take care when selecting the place of speaker installation; ensure the structure is adequate to withstand the weight of the box.
- > Fix the base of the bracket to the wall using suitable screws in all bracket fixing holes.
- > Remove the 4 feet (A) and the stand adapter (B).
- > Fix the flange (C).
- > Position the speaker between the two bracket arms (D) and fasten it with the two bolts M10 (E).
- > Turn the speaker the way you want and secure it with the specific pins M6 (F).



INSTALLATION MODES

INSTALLATION THROUGH SWINGING WALL SUPPORT

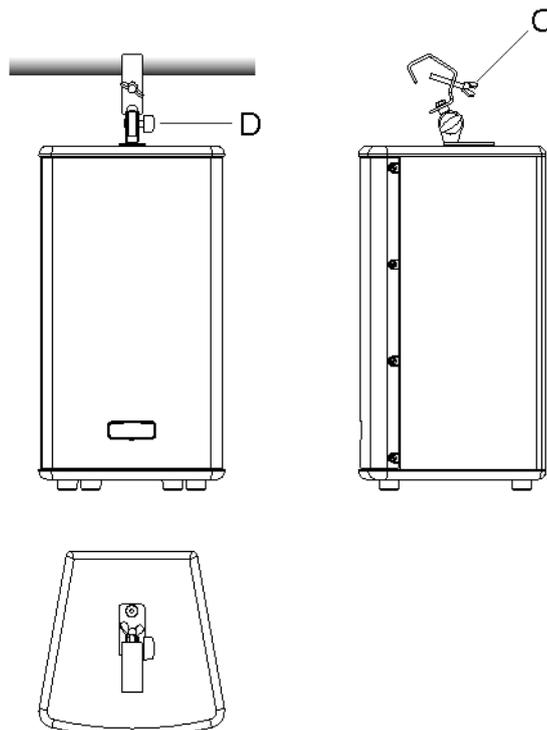
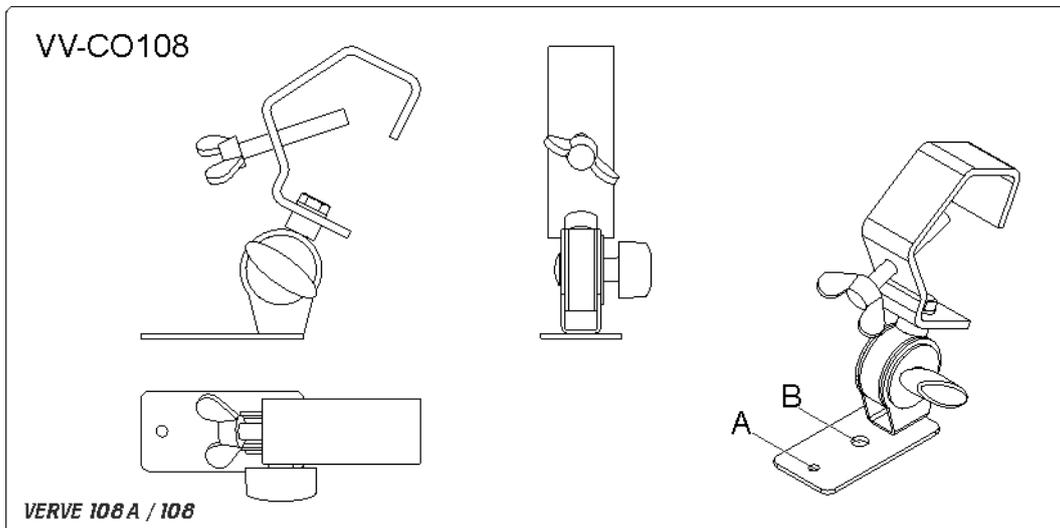
- > Carefully choose the area where speakers will be installed, making sure that the structure can support cabinet's weight.
- > Secure the wall section of the support (A) by using suitable plugs in all its fixing holes (B).
- > Fix the other section of the support (C) to the rear of the speaker using the 4 M5 screws provided.
- > Lock the speaker to the wall support (D).
- > Insert the screw (E) in the relevant hole (F) so to place the speaker to the desired angle and for further safety.



INSTALLATION MODES

INSTALLATION THROUGH CLAMPS FOR SWINGING TOWER MAST

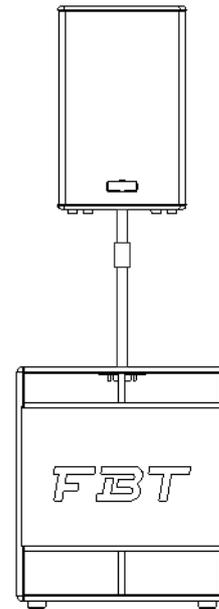
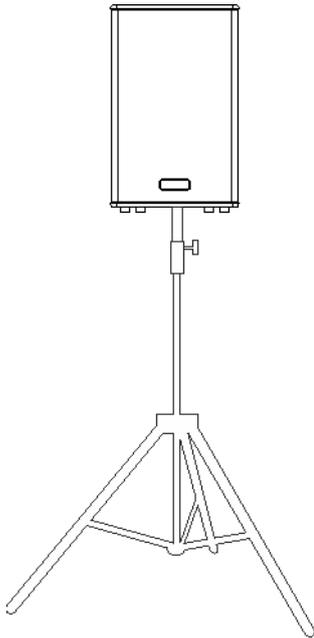
- > Carefully choose the area where speakers will be installed, making sure that the structure can bear box weight.
- > Secure the support to the speaker by inserting the proper M10 pins into the relevant holes (A-B).
- > Fit the speaker onto the tower mast and secure by means of the wing screw (C).
- > Select the desired angle and block the speaker using the knob (D)



INSTALLATION MODES

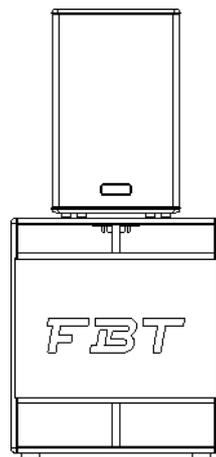
INSTALLATION ON TRIPOD STAND

- > Make sure that the stand can bear speaker's weight.
- > Place the stand on a flat and antislip surface.
- > Widen stand base as much as possible to increase its stability.



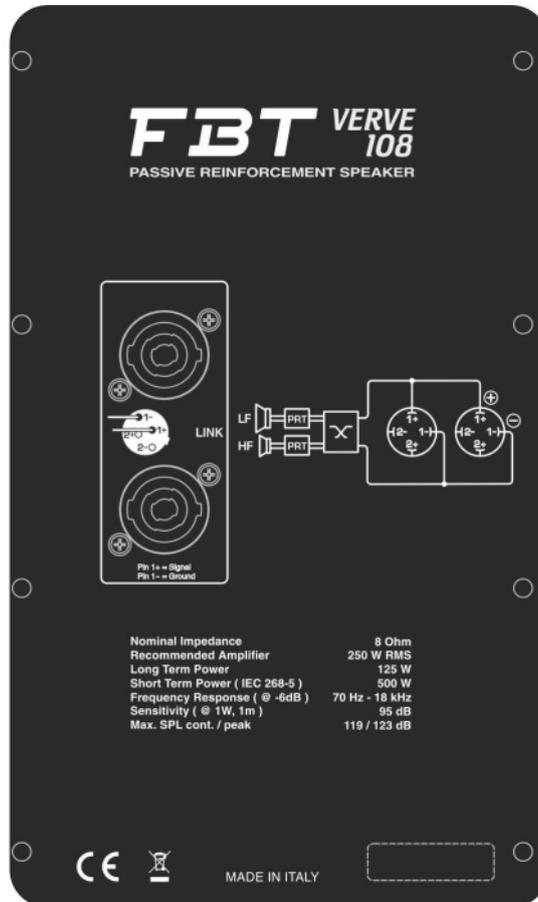
STACK INSTALLATION

- > Subwoofer on the ground and the relevant satellite on it.



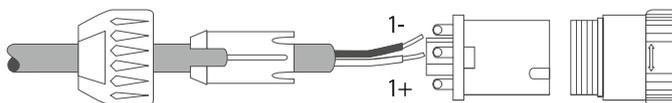
CONTROLS AND FUNCTIONS

VERVE 108 / VERVE 110 / VERVE 112 / VERVE 115 / VERVE 212 / VERVE 112M / VERVE 115M



Speakon connectors are connected in parallel mode. One connector can be used to connect the box to the output of a power amplifier, the other to connect to a second box.

Loudspeaker cables shall have the adequate diameter, depending on the overall length of the connection. The resistance introduced by an inadequate wiring towards the loudspeakers would reduce both the power output and the damping factor of the loudspeaker.



SPEAKON is a registered trademark of NEUTRIK

CONTROLS AND FUNCTIONS

VERVE 108A / VERVE 110A / VERVE 112A / VERVE 115A / VERVE 212A / VERVE 112MA / VERVE 115MA

PRESET:

Select 4 preset each of whom corresponds to a different equalization according to user's personal preferences and to the acoustics of the listening area (see "PRESET" section).

LEV:

Adjusts the signal general level.

HP FILTER:

This switch activates the "low cut" filter which lets only the frequencies above the cut-off frequency pass at the output (TO BE ACTIVATED IN THE CONFIGURATION WITH THE SUBWOOFER).

SOURCES:

Position the switch to "MIC" if a microphone is connected; position to "LINE" when connecting a high level signal source.

PRT / LMT:

If this led lights up there is a system malfunction due to an internal amplifier failure or to the intervention of current limiting circuits against thermal overload.

PEAK:

When this led lights up it indicates that the signal is reaching saturation.

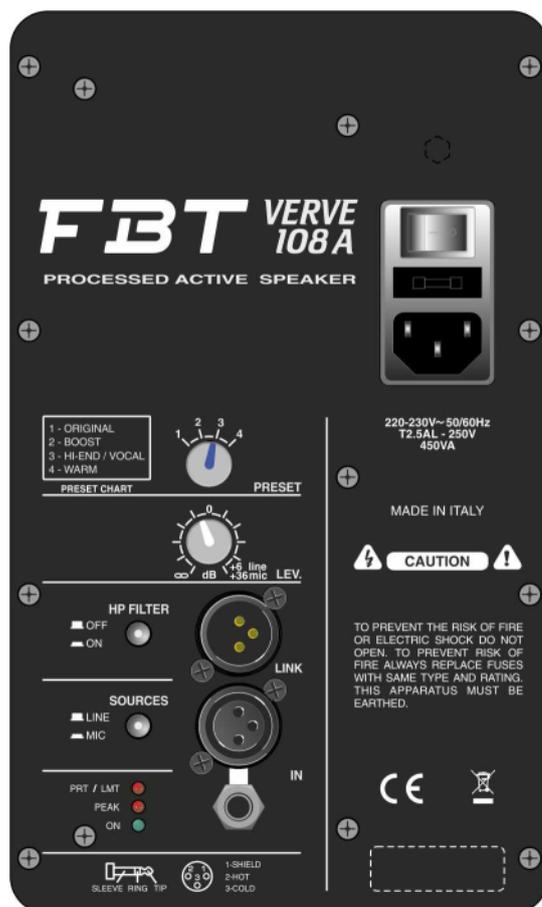
ON: Indicates that the system is on.

IN - LINK:

Balanced input/output sockets. "IN" allows to connect a pre-amplified signal such as that coming, for instance, from mixer output; "LINK" allows to connect multiple speakers to the same signal.

When connecting any Line level device (mixer, electronic keyboard, etc.) to the powered VERVE speakers use a shielded audio cable preferably a 1/4" TRS balanced or a balanced XLR type cable. NEVER USE A SPEAKER CABLE with any powered speaker to make connections. Failure to do so will result in hum, buzz, signal loss and can damage your VERVE speakers, and other equipment connected.

Avoid sending a line signal (from a mixer, an electronic keyboard, a bass or guitar amplifier, etc.) with the MIC/LINE switch in the MIC position. Doing so will result in damage to, or the complete failure of the loudspeakers: woofer, high frequency driver as well as the VERVE internal power amplifiers. The MIC/LINE switch should only be placed in the MIC position when connecting a low impedance dynamic microphone directly into the powered VERVE speakers.



PRESET

Instead of rotary EQ controls, FBT's new Digital Signal Processor with 4 factory equalization presets provides simple and efficient EQ adjustment. Hundreds of hours of testing in the anechoic chamber in our factory went into the development of these presets to optimize the VERVE speakers for use for numerous applications.

ORIGINAL: corresponds to the typical "FBT" sound; it is the default general purpose preset and is thus fit for the majority of applications.

BOOST: boosts band edges for full and surround timbre response.

HI-END / VOCAL: extremely flat response, typical of top class speakers exclusively designed for touring applications; it allows for the best speech intelligibility.

WARM: provides a dense sound quality on middle-low frequencies and a less aggressive quality on trebles; suitable for broadcasting music in very sound-absorbing environments or in situations that require a very strong sound at low frequencies and a sweet sound at middle-high frequencies.

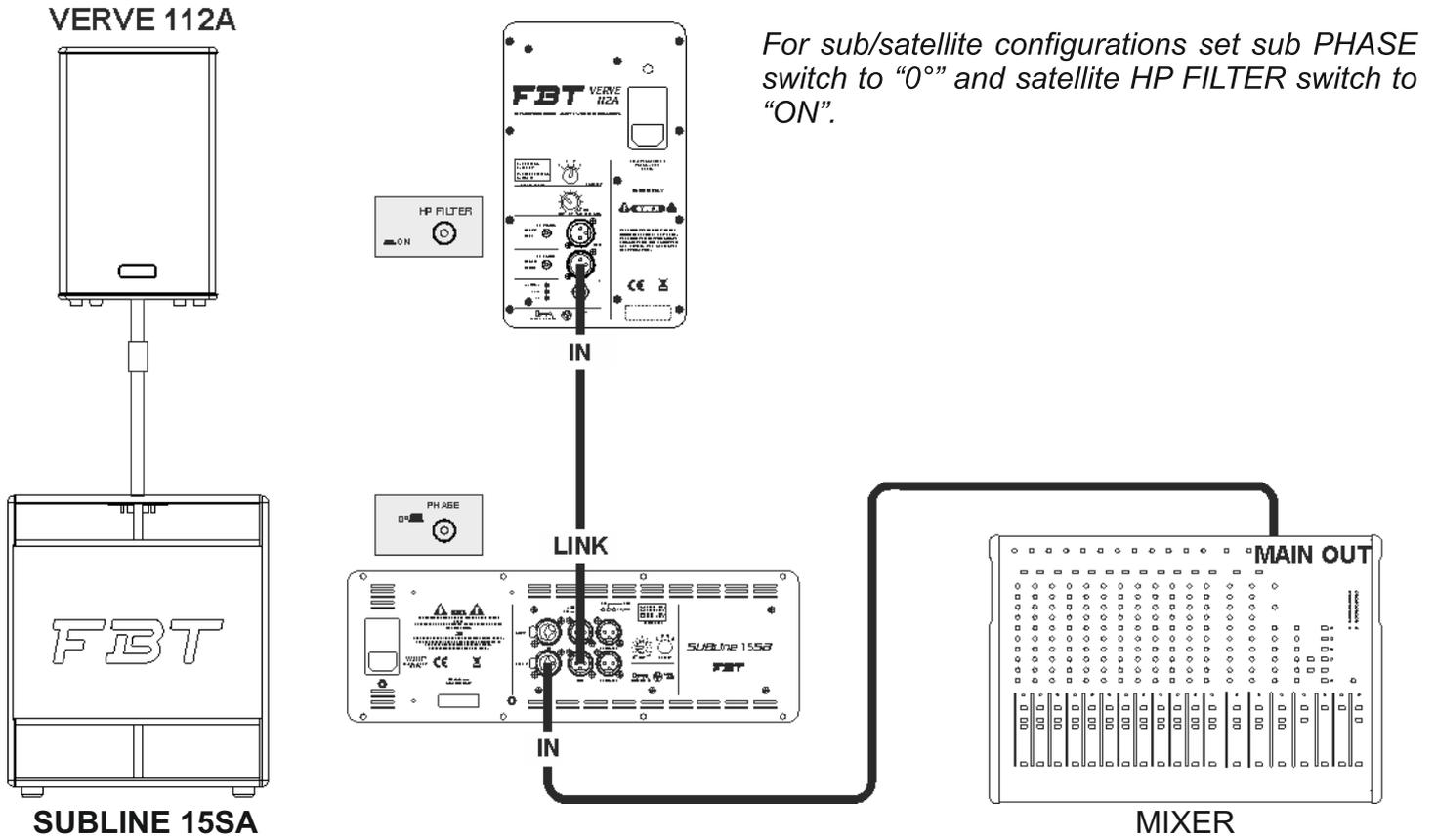
HI-CUT / DRUM FILL: considering the high volume levels and the typical near field position of the monitor, some mid-high frequencies may result unpleasant, making sound listening more difficult and distracting artists from their performance. This preset reduces these frequencies, guaranteeing a natural and pleasant sound, even at high SPL. It has been also designed for being used as a drum fill for drummers, with the monitor placed on the subwoofer.

LO-CUT / DOUBLE: on the stage there are often excess low frequencies returning from the master system, which may make monitor sound less intelligible. This preset reduces low frequencies, making monitor sound clearer and increasing its presence. It is also useful when two monitors are used in a stereo configurations (right and left), for instance for the singer, and allows to obtain a more balanced response for low frequencies.

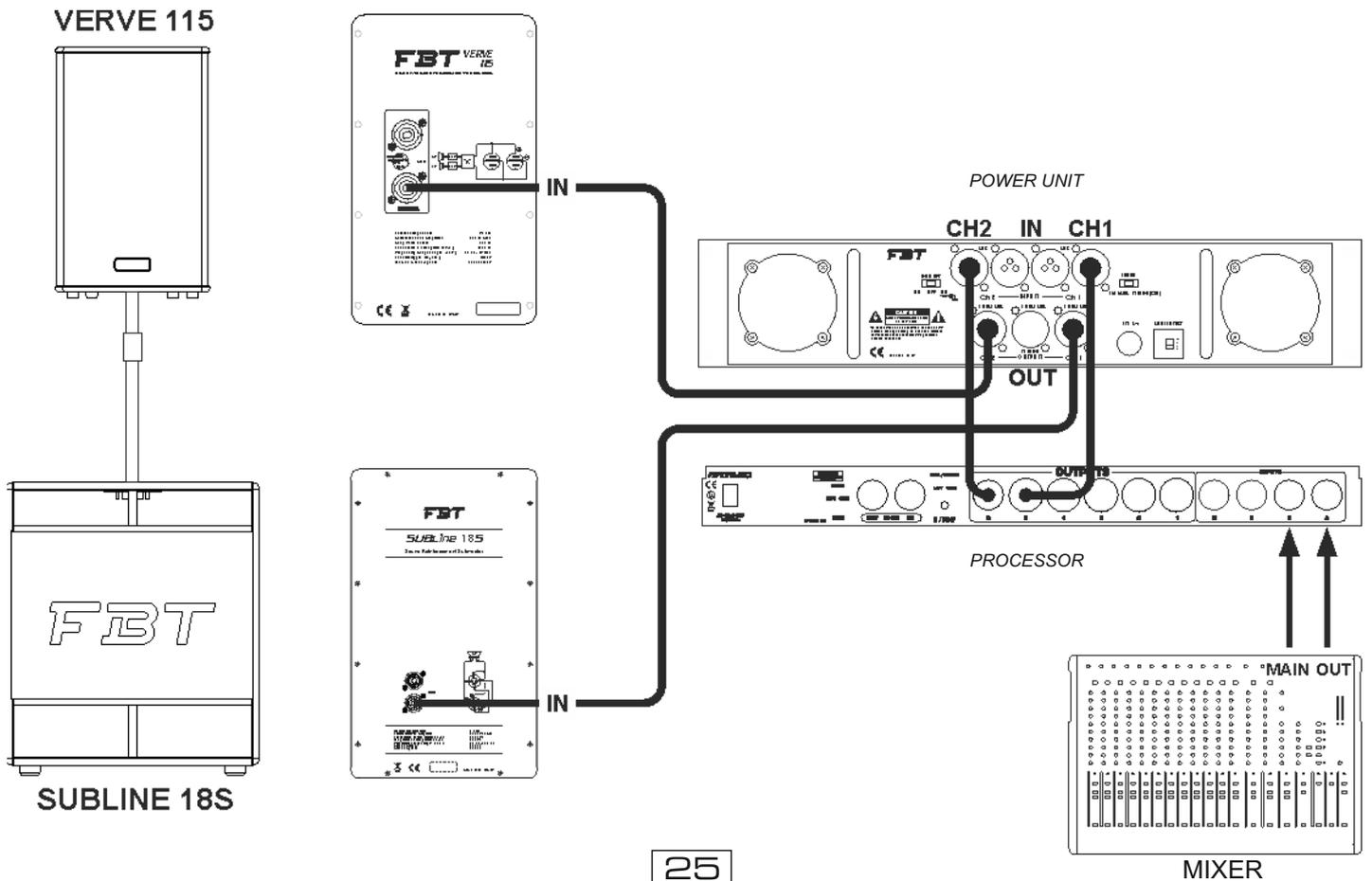
FOH: use this preset in case of pole or wall/ceiling installation of the monitor by means of the optional accessory, as well as, more in general, for all front of house applications.

CONNECTION EXAMPLES

ACTIVE



PASSIVE



TECHNICAL SPECIFICATIONS

MODEL		212A	115A	112A	110A	108A	115MA	112MA
Configuration	way	2	2	2	2	2	2	2
Built in amplifier cont. RMS LF/HF	W	350/80	350/80	350/80	350/80	350/80	350/80	350/80
Built in amplifier max. RMS LF/HF	W	400/100	400/100	400/100	400/100	400/100	400/100	400/100
Built in amplifier max. peak LF/HF	W	800/200	800/200	800/200	800/200	800/200	800/200	800/200
Frequency response	@-6dB	50Hz-20kHz	45Hz-20kHz	52Hz-20kHz	60Hz-20kHz	60Hz-20kHz	57Hz-20kHz	65Hz-20kHz
Low frequency woofer	inch	2x12 coil 2.5	15 coil 2.5	12 coil 2.5	10 coil 2	8 coil 2	15 coil 2.5	12 coil 2.5
High frequency driver	inch	1.4 coil 2.5	1 coil 1.4	1 coil 1.4	1 coil 1.4	1 coil 1.4	1 coil 1.7	1 coil 1.7
Maximum SPL cont/peak	dB	127.5/133	125.5/130	124/130	122.5/128	121/128	125.5/131	124/129
Dispersion		70° x 50°	80° x 50°	80° x 50°	80° x 50°	80° x 50°	90°	90°
Input impedance	kOhm	22	22	22	22	22	22	22
Crossover frequency	kHz	1.3	1.6	1.6	1.8	2.2	1.5	1.6
AC Power requirement	VA	450	450	450	450	450	450	450
Input connectors		XLR con loop						
Power cord	ft	16.4	16.4	16.4	16.4	16.4	16.4	16.4
Net dimensions (WxHxD)	inch	15.51x39.96x14.96	16.73x29.21x16.53	15.51x25.39x14.96	12.83x22.24x12.79	10.55x19.68x10.62	24.40x14.17x18.50	21.65x12.59x16.14
Net weight	lb	76.05	59.96	45.41	33.95	25.57	43.21	36.59
Transport dimensions (WxHxD)	inch	19.68x44.68x19.68	20.86x33.85x20.86	19.68x30.11x19.68	16.92x26.96x16.92	12.99x24.40x12.99	28.22x20.15x23.42	27.16x16.41x18.81
Transport weight	lb	84.87	66.57	51.58	38.36	29.98	49.82	42.76

MODEL		212	115	112	110	108	115M	112M
Configuration	way	2	2	2	2	2	2	2
Recommended amplifier	W rms	800	500	400	300	250	500	500
Long term power	W	400	250	200	150	125	250	250
Short term power (IEC 268-5)	W	1600	1000	800	600	500	1000	1000
Frequency response	@-6dB	55Hz-18kHz	50Hz-18kHz	55Hz-18kHz	60Hz-18kHz	70Hz-18kHz	60Hz-18kHz	70Hz-18kHz
Low frequency woofer	inch	2x12 coil 2.5	15 coil 2.5	12 coil 2.5	10 coil 2	8 coil 2	15 coil 2.5	12 coil 2.5
High frequency driver	inch	1.4 coil 2.5	1 coil 1.4	1 coil 1.4	1 coil 1.4	1 coil 1.4	1 coil 1.7	1 coil 1.7
Sensitivity (@1W, 1m)	dB	101	99	98	97	95	99	98
Maximum SPL cont/peak	dB	130 / 134	125 / 129	124 / 128	121 / 125	119 / 123	124 / 129	125 / 129
Dispersion	H x V	70° x 50°	80° x 50°	80° x 50°	80° x 50°	80° x 50°	90°	90°
Nominal impedance	Ohm	8	8	8	8	8	8	8
Crossover frequency	kHz	1.4	1.6	1.8	2	2.2	1.6	2
Recommended HP filter		40Hz-24dB oct.	35Hz-24dB oct.	40Hz-24dB oct.	45Hz-24dB oct.	55Hz-24dB oct.	45Hz-24dB oct.	65Hz-24dB oct.
Input connectors		2xSpeakon NL4 in & thru						
Net dimensions (WxHxD)	inch	15.51x39.96x14.96	16.73x29.21x16.53	15.51x25.39x14.96	12.83x22.24x12.79	10.55x19.68x10.62	24.40x14.17x18.50	21.65x12.59x16.14
Net weight	lb	76.05	59.96	45.41	33.95	25.57	43.21	36.59
Transport dimensions (WxHxD)	inch	19.68x44.68x19.68	20.86x33.85x20.86	19.68x30.11x19.68	16.92x26.96x16.92	12.99x24.40x12.99	28.22x20.15x23.42	27.16x16.41x18.81
Transport weight	lb	84.87	66.57	51.58	38.36	29.98	49.82	42.76

The table shows the power outputs, measured in accordance with the AES standard, that are acceptable by the loudspeaker.

All the drivers are tested with a crest factor of 2, thereby applying a criterion of high quality (where the ratio between average voltage and burst voltage supplied to the system is greater than or equivalent to 2). FBT recommends using an amplifier with RMS output that is double the value given in the table (into an impedance equivalent to the nominal impedance of the loudspeaker or of the individual driver).

WARNING. the recommended amplifier makes it possible to exploit the full dynamic potential of the loudspeakers to obtain the maximum sound quality and SPL, **but it does not guarantee the protection of the speakers in any condition of use**; in the case of a highly compressed music program or if the amplifier is driven to clipping levels the drivers may be damaged due to overheating or excessive cone excursion.

For music programs with reduced dynamics and pronounced distortion it is advisable to use an amplifier with an RMS output that is equal to or lower than the value given in the table to avoid exceeding the heat dissipation capacity of the drivers. In any event, driving the amplifier in clipping mode results in a substantial rise in the power supplied to the HF unit, which may therefore be damaged despite tripping of the protection in the internal crossover.

* 2 hours, pink noise with crest factor 2, applied RMS voltage corresponding to the power on the minimum of the modulus of the impedance of the speaker.

mod.		FULL-RANGE
VERVE 108	* Power	125W / 8 Ohm
VERVE 110	* Power	150W / 8 Ohm
VERVE 112	* Power	200W / 8 Ohm
VERVE 115	* Power	250W / 8 Ohm
VERVE 212	* Power	400W / 8 Ohm
VERVE 112M	* Power	250W / 8 Ohm
VERVE 115M	* Power	250W / 8 Ohm

AES LONG TERM APPLICABLE POWER denotes the thermal power that can be dissipated by the loudspeaker or by the individual drivers when operated in BI-AMP mode. This value is measured in accordance with the AES standard, which involves a 2 hour test with pink noise signal, crest factor of 2. Power is determined by the square of the RMS voltage divided by the minimum impedance of the loudspeaker or the individual driver.

Although the **POWER OF THE RECOMMENDED AMPLIFIER** is not measured, it is equivalent to double the AES power value and it takes account of the dynamic capacities of the speakers to withstand short duration power peaks. The value supplied corresponds to the RMS power required of the amplifier in order to supply the test signal (pink noise with crest factor 2) utilised to measure AES power.

An amplifier of this power, if used with music signals with crest factor greater than or equal to 6dB, makes it possible to get the best performance out of the speaker, delivering a long term power output that is no higher than the AES power of the loudspeaker.

On the contrary, when using highly compressed music signals or if the amplifier volume is increased to the point of intensive clipping, then the effective long term power tends to reach or even exceed the RMS output of the amplifier, resulting in irreversible damage to the speakers.

With signals of this type it is always advisable to use an amplifier whose RMS output is identical to the speaker AES power, while taking care to ensure that the signal supplied is such that the amplifier is not caused to function in clipping mode too frequently.

IEC268-5 SHORT TERM APPLICABLE POWER corresponds to the power that the loudspeaker can withstand for a very short time interval. This value corresponds to 4 times the AES power value and it is calculated on the basis of the maximum peak voltage that the recommended amplifier can supply to the loudspeaker. Capacities in terms of SPL in transient components of music signals, effectively correspond to the short term applicable power value; therefore, the max. SPL value specified in the technical specifications table is calculated on the basis of this power value

WARNING: the power value that effectively corresponds to the thermal capacity of the loudspeaker to dissipate electrical energy over the long term is represented by the AES value. All other values refer to the "transient capacity" of the loudspeaker to accept power inputs, correlated with the nature of the audio signal that the drivers are destined to reproduce.



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 37200#23112012

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.