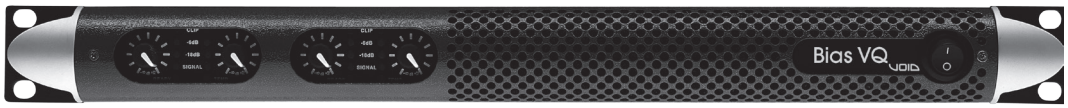
Bias VQ

User Guide V1.0



Version 1.0

This user guide is subject to change without notice.
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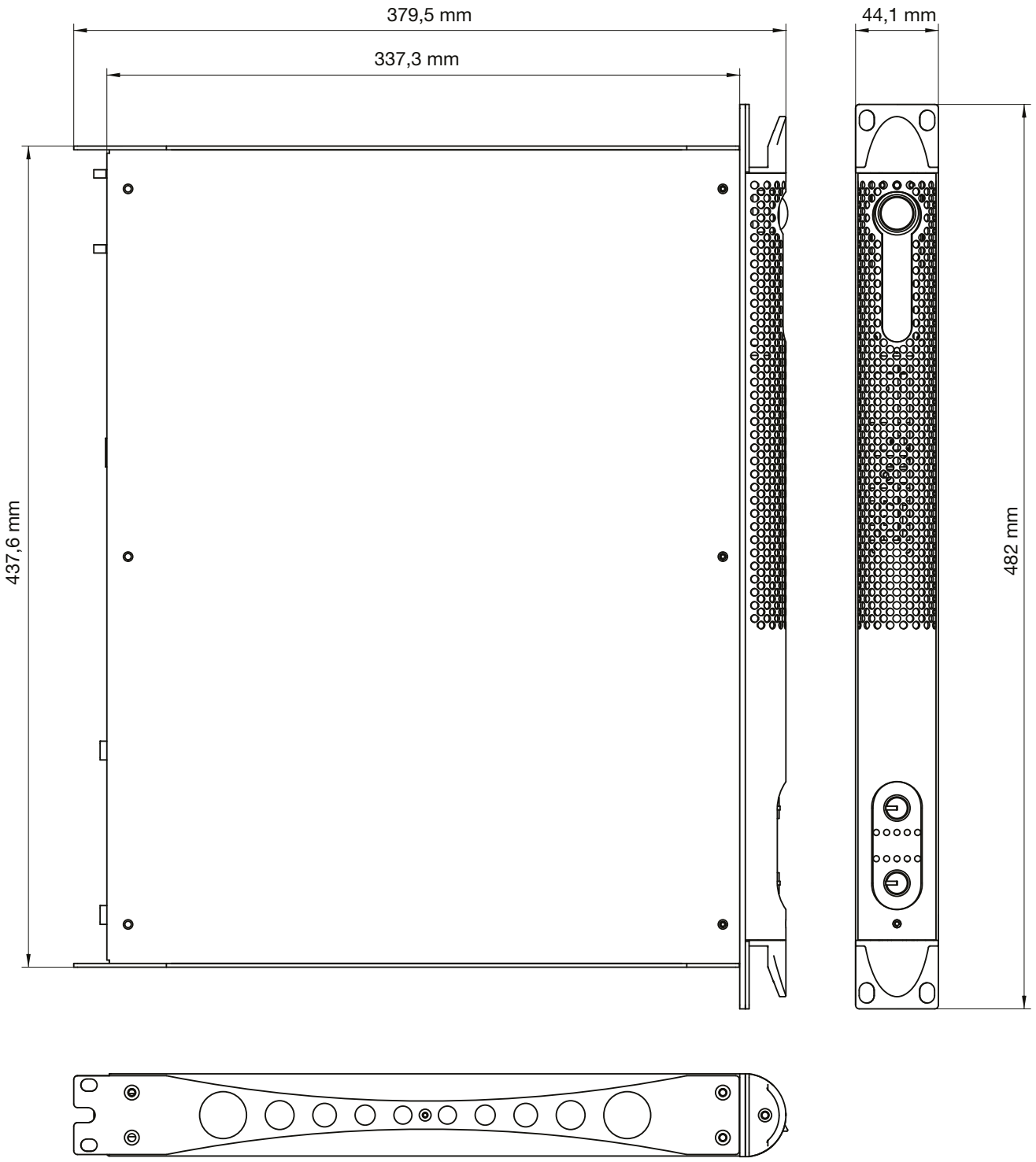
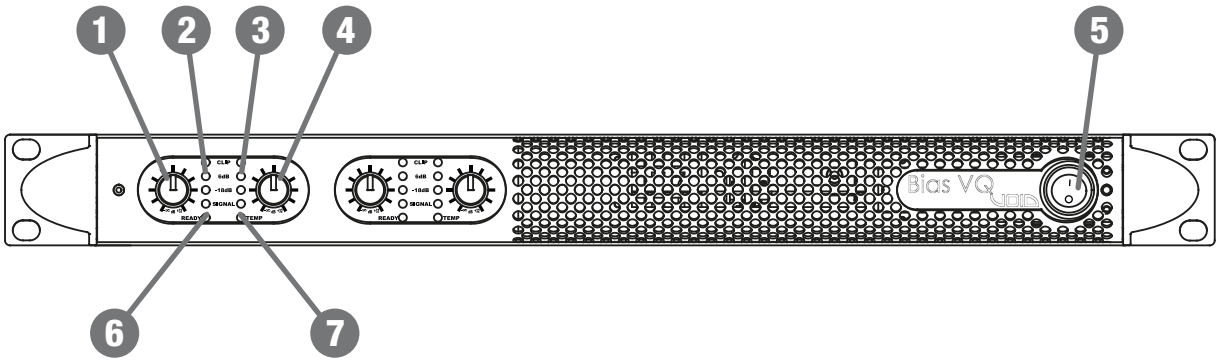


Components



1. Channel 1 input attenuator
2. Channel 1 meter LEDs
3. Channel 2 meter LEDs
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5. On/off power switch
6. Channels 1-2 ready LED
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10. Channel 3-4 line input XLR connector
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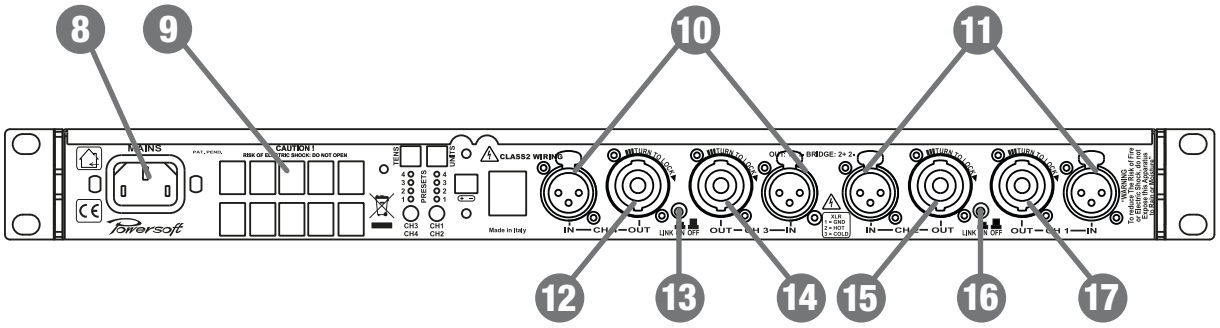
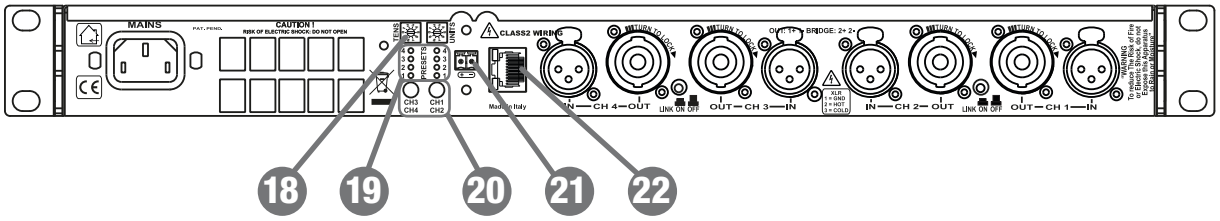
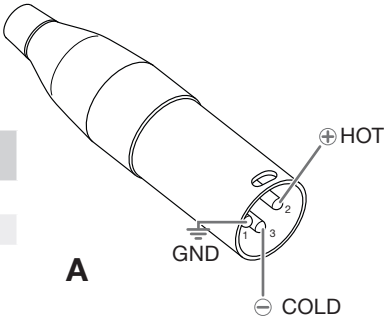


18. Amplifier's remote ID selector
19. Preset LEDs
20. Preset selector buttons
21. Auxiliary voltage connector Pheonix MCV 1,5/ 2-G-3, 81
22. Ethernet port

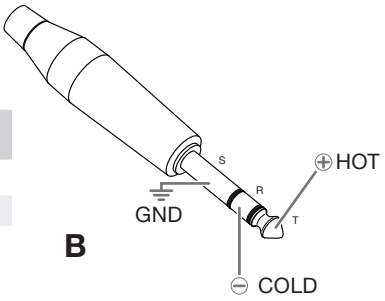


Connectors and wiring

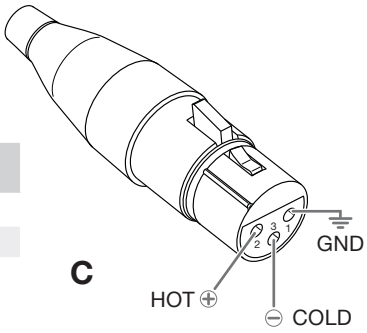
Analog input XLR-M pinout	
Pin 1	GND
Pin 2	HOT ⊕
Pin 3	COLD ⊖



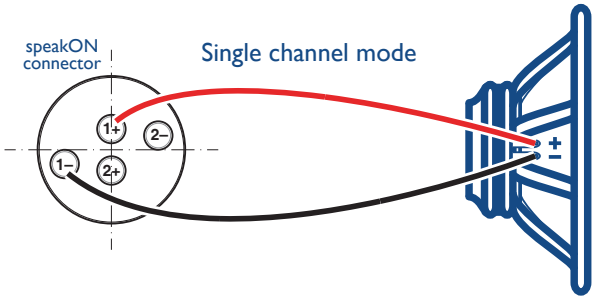
Analog input TRS Jack pinout	
Tip	HOT ⊕
Ring	COLD ⊖
Sleeve	GND

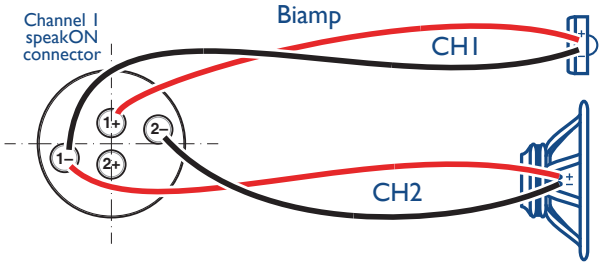


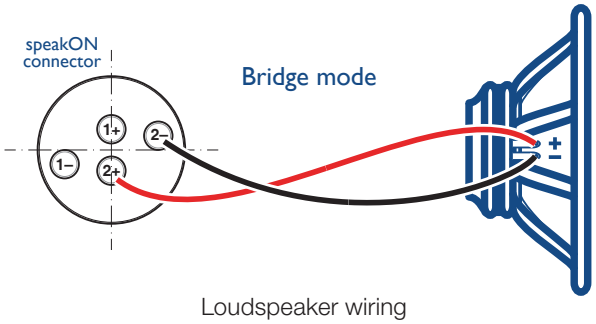
Analog line output XLR-F pinout	
Pin 1	GND
Pin 2	HOT ⊕
Pin 3	COLD ⊖



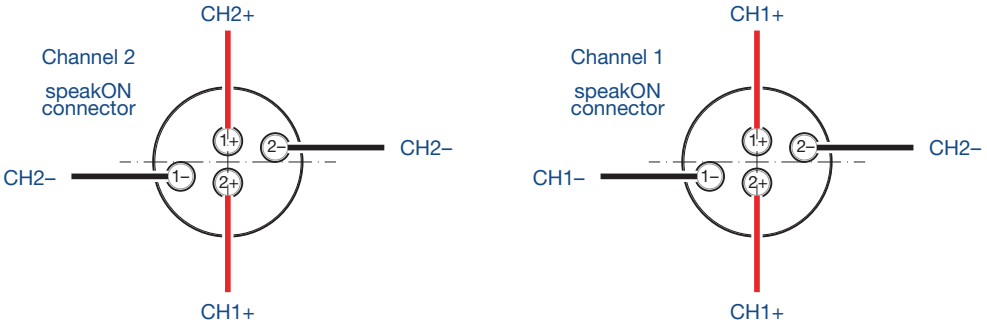
Input connectors pinout







Loudspeaker wiring



Output connectors pinout

Regulatory information

FCC COMPLIANCE NOTICE

This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

WEEE DIRECTIVE

If the time arises to throw away your product, please recycle all the components possible.

This symbol indicates that when the end-user wishes to discard this product, it must be sent to separate collection facilities for recovery and recycling. By separating this product from other household-type waste, the volume of waste sent to incinerators or land-fills will be reduced and natural resources will thus be conserved.

The Waste Electrical and Electronic Equipment Directive (WEEE Directive) aims to minimise the impact of electrical and electronic goods on the environment. Void Acoustic Research Ltd comply with the Directive 2002/96/EC and 2003/108/EC of the European Parliament on waste electrical finance the cost of treatment and recovery of electronic equipment (WEEE) in order to reduce the amount of WEEE that is being disposed of in land-fill site.

All of our products are marked with the WEEE symbol; this indicates that this product must NOT be disposed of with other waste. Instead it is the user's responsibility to dispose of their waste electrical and electronic equipment by handing it over to an approved reprocessor, or by returning it to Powesoft S.p.A. for reprocessing. For more information about where you can send your waste equipment for recycling, please contact Powesoft S.p.a. or one of your local distributors.

EC DECLARATION OF CONFORMITY

Manufacturer:
Void Acoustics Research Ltd
Unit 15 Dawkins Ind Est
Poole, Dorset
BH15 4JY
United Kingdom

We declare that under our sole responsibility the products:
Model Name: Bias VQ

Intended use: Professional Audio Amplifier

Are in conformity with the provisions of the following EC Directives, including all amendments, and with national legislation implementing these directives:

- 2006/95/EC Low Voltage Directive
- 2004/108/ECElectromagnetic Compatibility Directive
- 2002/95/CE RoHs Directive

The following armonized standards are applied:

- EN 55103-1
- EN 55014-1
- EN 55022
- EN 61000-3-2
- EN 61000-3-3
- EN 61000-3-11
- EN 61000-3-12
- EN 55103-2
- EN 61000-4-2
- EN 61000-4-3
- EN 61000-4-4
- EN 61000-4-5
- EN 61000-4-6
- EN 61000-4-11
- EN 60065

For compliance questions only: info@voidacoustics.com

1 Important safety instructions

EXPLANATIONS OF GRAPHICAL SYMBOLS

The triangle with the lightning bolt is used to alert the user to the risk of electric shock.

The triangle with the exclamation point is used to alert the user to important operating or maintenance instructions.

The CE-mark indicates the compliance with the low voltage and electromagnetic compatibility.

Symbol for earth/ground connection.

Symbol indicating that the equipment is for indoor use only.

Symbol for conformity with Directive 2002/96/EC and Directive 2003/108/EC of the European Parliament on waste electrical and electronic equipment (WEEE).

WARNING: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT ATTEMPT TO OPEN ANY PART OF THE UNIT. NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

TO COMPLETELY DISCONNECT THIS APPARATUS FROM THE AC MAINS, DISCONNECT THE POWER SUPPLY CORD PLUG FROM THE AC RECEPTACLE.

THE MAINS PLUG OF THE POWER SUPPLY CORD MUST REMAIN READILY ACCESSIBLE.

DO NOT EXPOSE THIS EQUIPMENT TO RAIN OR MOISTURE, DRIPPING OR SPLASHING LIQUIDS. OBJECTS FILLED WITH LIQUIDS, SUCH AS VASES, SHOULD NOT BE PLACED ON THIS APPARATUS.

THE UNIT MUST BE INSTALLED IN RACK CABINETS: INSTEAD OF CONNECTING THE AMPLIFIER TO THE POWER GRID DIRECTLY, PLUG THE AMPLIFIER'S MAINS CONNECTIONS VIA A SECTIONING BREAKER TO A POWER DISTRIBUTION PANEL INSIDE THE RACK CABINET.

WHEN THE UNIT IS INSTALLED IN A CABINET OR A SHELF, MAKE SURE THAT IT HAS SUFFICIENT SPACE ON ALL SIDES TO ALLOW FOR PROPER VENTILATION (50 CM FROM THE FRONT AND REAR VENTILATION OPENINGS).

CONNECTION TO THE MAINS SHALL BE DONE ONLY BY A ELECTROTECHNICAL SKILLED PERSON ACCORDING THE NATIONAL REQUIREMENTS OF THE COUNTRIES WHERE THE UNIT IS SOLD.

Electrical energy can perform many useful functions. This unit has been engineered and manufactured to ensure your personal safety. But IMPROPER USE CAN RESULT IN POTENTIAL ELECTRICAL SHOCK OR FIRE HAZARD.
In order not to defeat the safeguards incorporated into this product, observe the following basic rules for its installation, use and service. Please read these "Important Safeguards" carefully before use.

Important safety instructions

1. Read these instructions.
2. Keep these instructions.
3. Heed all warnings.
4. Follow all instructions.
5. Do not use this equipment 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 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.

2 Bias Series

2.1 Welcome

Many thanks for purchasing this Void Acoustics Bias Series amplifier. We truly appreciate your support. At Void, we design, manufacture and distribute advanced professional audio systems for the installed and live sound market sectors. Like all Void products, our highly skilled and experienced engineers have successfully combined pioneering technologies with ground-breaking design aesthetics, to bring you superior sound quality and visual innovation. In buying this product, you are now part of the Void family and we hope using it brings you years of satisfaction. This guide will help you to use this product safely and ensure it performs to its full capability.

2.2 The Bias Series

Bias Series amplifiers are specifically designed for touring and live applications. The amplifiers in this series offer smaller dimensions, lighter weight and the amazing sound quality and reliability of all Void products.

Bias Series amplifiers have power ratings suitable for a vast range of common applications including 70V/100V distributed line systems.

The Bias Series offers complete protection against any possible operation error. Every amplifier in this series is designed to work under a large range of possible conditions, delivering maximum power with maximum safety and an outstanding long term reliability. Anticipating potential problems at the design stage means your show always goes on!

2.3 Unpacking & checking for shipping damage

Your Void product has been completely tested and inspected before leaving the factory. Carefully inspect the shipping package before opening it, and then immediately inspect your new product. If you find any damage notify the shipping company or reseller immediately.

The box contains the following:

- 1x Bias Series amplifier;
- 1x AC mains power cord;
- 1x quick guide.

2.4 Disposal of the packaging material

The transport and protective packaging has been selected from materials which are environmentally friendly for disposal and can normally be recycled.

Rather than just throwing these materials away, please ensure they are offered for recycling.

3 Installation

The common installation of the amplifier is in rack cabinets: in order to limit the risk of mechanical damages, the amplifiers must be fixed to the rack using both frontal and rear mounting brackets.

Note: Instead of connecting the amplifier to the power grid directly, plug the amplifier's mains connections to a power distribution panel inside the rack cabinet.

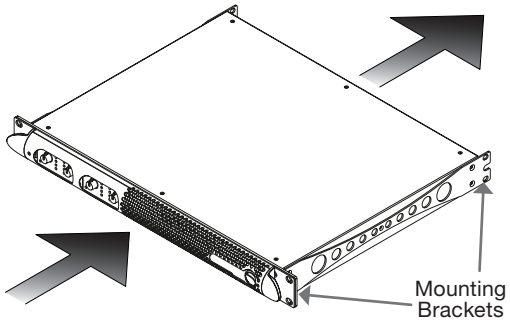


FIG. 1: Mounting brackets and air flow direction.

3.1 Cooling

Install the amplifier in a well-ventilated location: the ventilation openings must not be impeded by any item such as newspapers, tablecloths, curtains, etc; keep a distance of at least 50 cm from the front and rear ventilation openings of the amplifier.

All Void amplifiers implement a forced-air cooling system to maintain low and constant operating temperatures. Drawn by the internal fans, air enters from the front panel and is forced over all components, exiting at the back of the amplifier.

The amplifier's cooling system features "intelligent" variable-speed DC fans which are controlled by the heatsink temperature sensing circuits: the fans speed will increase only when the temperature detected by the sensors rises over carefully predetermined values. This ensures that fan noise and internal dust accumulation are kept to a strict minimum. Should however the amplifier be subject to an extreme thermal load, the fan will force a very large volume of air through the heat sink. In the extremely rare event that the amplifier should dangerously overheat, sensing circuits shut down all channels until the amplifier cools down to a safe operating temperature. Normal operation is resumed automatically without the need for user intervention.

Bias Series amplifiers can be stacked one on top of the other due to the efficient cooling system they are equipped with.

There is however a safety limit to be observed: in case a rack with closed back panels is used, leave one rack unit empty every four installed amplifiers to guarantee adequate air flow.

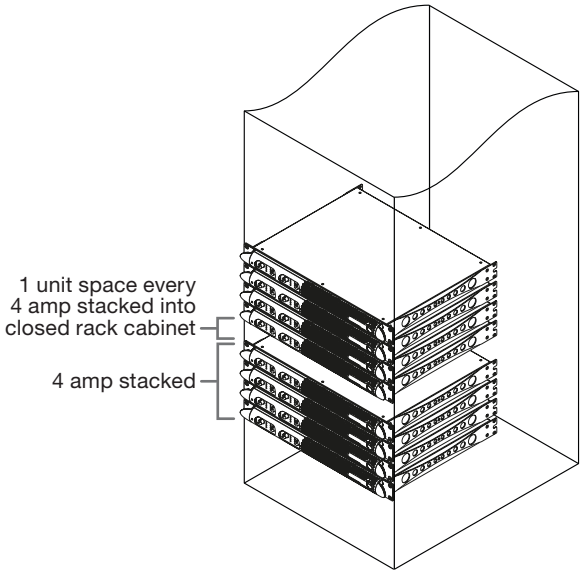


FIG. 2: How to stack the amplifiers in closed racks.

3.2 Cleaning

Always use a dry cloth for cleaning the chassis and the front panel. Air filter cleaning should be scheduled according to the dust levels in the amplifier's operating environment.

Disconnect the AC main source before attempting to clean any part of the amplifier

In order to clean the vent filters you need to remove the front cover: never attempt to open any other part of the unit.

By means of a screwdriver Phillips PH1, unscrew the two screws on the left and right of the cover grills on the front panel (refer to FIG. 3), gently lift the covers and remove the filters.

You may use compressed air to remove the dust from filters, or wash it with clean water: in the latter case ensure that the filters are dry before reassembly.

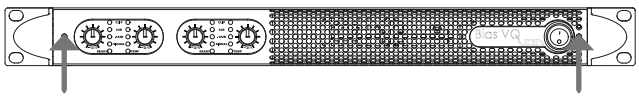


FIG. 3: *Cleaning air filters.*

3.3 LED chart

Signal metering

Colour		Light on	Label
●	RED	Channel output level has reached clipping limits OR Short circuit protection has been engaged	CLIP
●	GREEN	Channel output level is above -6 dB of max output level	-6 dB
●	GREEN	Channel output level is above -18 dB of max output level	-18 dB
●	GREEN	Input signal presence	SIGNAL

Status

Colour		Light on	Label
●	GREEN	Channel is ready	READY
●	YELLOW	Output power is being reduced due to heat sink temperature exceeding 75° C*	TEMP

* Should the temperature exceeds 85°C, the LED will stay on and the channel will be muted. The amplifier will resume normal functioning and the LED will turn off automatically when the temperature falls below 75°C.

3.4 AC mains supply

The AC Main connection is made via the IEC C13 connector on the rear panel. Bias Series amplifiers are factory configured to work either with 115V or 230V AC mains.

⚠ Make sure the AC mains voltage used is within the acceptable operating voltage range: 115V±10% or 230V ±10%. ⚠

⚠ It is important to connect the ground for safety, do not use adapters that disable the ground connection. ⚠

⚠ Connection to the mains shall be done only by a electrotechnical skilled person according the national requirements of the countries where the unit is sold. ⚠

The FIG. 4 shows how to connect the mains power cable to the amplifier.

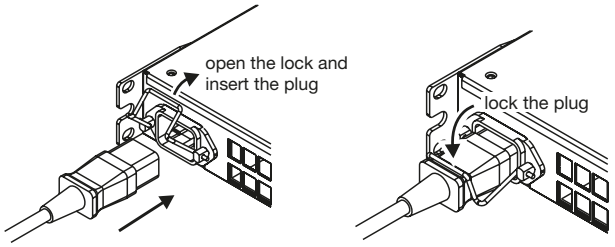


FIG. 4: *Mains connector.*

3.5 Precautions regarding installation

Placing and using the amplifier for long periods of time on heat generating sources will affect its performance. Avoid placing the amplifier on heat generating sources. Install this amplifier as far as possible from tuners and TV sets. An amplifier installed in close proximity of such equipment may experience noise or generic performance degradation.

WARNING: TO PREVENT FIRE OR ELECTRIC SHOCK

- This device must be powered exclusively by earth connected mains sockets in electrical networks compliant to the IEC 364 or similar rules.
- Install the unit into rack cabinet.
- A sectioning breaker between the mains connections and the amplifier must be installed inside the rack cabinet. Suggested device is 16A/250VAC, C or D curve, 10 kA.
- Before powering this amplifier, verify that the correct voltage rating is being used.
- Verify that your mains connection is capable of satisfying the power ratings of the device.
- Do not use this amplifier if the electrical power cord is frayed or broken.
- Output terminals are hazardous: wiring connection to these terminals require installation by an instructed person and the use of ready-made leads.
- Take care to lock the output terminal before switching the device on.
- To avoid electrical shock, do not touch any exposed speaker wiring while the amplifier is operating.
- Do not spill water or other liquids into or on the amplifier.
- No naked flame sources such as lighted candles should be placed on the amplifier.
- Do not remove the cover. Failing to do so will expose you to potentially dangerous voltage.
- The manufacturer cannot be held responsible for damages caused to persons, things or data due to an improper or missing ground connection.
- Contact the authorized service centre for ordinary and extraordinary maintenance.

It is absolutely necessary to verify these fundamental requirement of safety and, in case of doubt, require an accurate check by qualified personnel.

4 Connections

Make sure the power switch is off before attempting to make any input or output connections.

By using good quality input and speaker cables, the likelihood of erratic signal behaviour is reduced to a minimum. Whether you make them or buy them, look for good quality wires, connectors and soldering techniques.

4.1 Signal grounding

There is no ground switch or terminal on the Bias Series amplifiers. All shield terminals of input connections are directly connected to the chassis. This means that the unit's signal grounding system is automatic. In order to limit hum and/or interference entering the signal path, use balanced input connections.

In the interests of safety, the unit MUST always operate with electrical safety earth connected to the chassis via the dedicated wire in the 3-wire cable (refer to §3:4.AC mains supply). Never disconnect the ground pin on the AC mains power cord.

4.2 Signal input

Analog input is provided by means of two Neutrik XLR connectors; refer to Panel C, p. 8 and Panel F, p. 4. Signal polarity for XLR and TRS plugs is shown in Panel H, p. 5.

4.3 Line output

Line out is provided in two channels models – M14D, M20D, M30D – via a couple of XLR connectors on the rear panel (refer Panel C, p. 8). In DSP equipped models, the output signal is pre-DSP, being a replica of the input signal.

4.4 Loudspeaker connections

Output terminals are hazardous: wiring connection to these terminals require installation by an instructed person and the use of ready-made leads.

Use suitable wire gauges to minimize power and damping factor losses in speaker cables.

The output connectors are Neutrik NL4MD speakON located on the rear panel: refer to Panel C, p. 8 and Panel F, p. 4. Each connector brings an output channel pair making easy single ended and bridged loads.

The speakON pinout and the suggested connections are shown in Panel I, p. 5. In the single channel mode wiring, the 1+ pin corresponds to positive, the 1– to negative signal polarity.

Bridge mode connection is possible only in lo-Z operating mode: minimum load impedance shall be 8Ω. Bridging of adjacent channels is possible for the following pairs: channels 1 with 2 for all models and channels 3 with 4 for MxxQ models.

In order to set the output in bridge mode:

- parallel the input by pressing on the link button;
- connect the loudspeaker to just one speakON: 2+ pin is the positive and the 2– the negative.

Some models of the Bias Series amplifiers are designed to work with hi-Z loads in 70V / 100V distributed lines; refer to TAB. 1 for compatibility.

Model	70V	100V
M14D	no	no
M14D HDSP+ETH	no	no
M20D	yes w/external HPF	no
M20D HDSP+ETH	yes w/internal preset	no
M30D	yes w/external HPF and peak limiter	yes w/external HPF
M30D HDSP+ETH	yes w/internal preset	yes w/internal preset
M28Q	no	no
M28Q HDSP+ETH	no	no
M50Q	yes w/external HPF and peak limiter	yes w/external HPF
M50Q HDSP+ETH	yes w/internal preset	yes w/internal preset

TAB. 1: Hi-Z distributed lines compatibility chart.

4.5 Ethernet connection

Bias Series HDSP+ETH models can be remotely controlled via an Ethernet connection through a personal computer and Void Armonía Pro Audio Suite™ software.

Void recommend the use of Ethernet Cat5 straight through – patch – cables with pin/pair assignments TIA/EIA-568-B, i.e. T568B.

4.6 Auxiliary voltage

On Bias Series HDSP+ETH models the auxiliary voltage connector is used to enable remote management of the DSP when the system is off.

When powered with an external 12 V_{DC} (1 A max) the internal controller allows to configure the DSP via the Armonía Pro Audio Suite software, even without AC mains supply.

5 Warranty and assistance

5.1 Warranty

5.1.1 Product warranty

Void guarantees its manufactured products to be free from defective components and factory workmanship for a period of 48 (forty eight) months, starting from the date of purchase printed on Void's (or any of its Authorized Dealer's) invoice to the end customer. All warranty repairs and retrofits must be performed at Void facilities or at an Authorized Service Centre at no cost for the purchaser. Warranty exclusion: Void's warranty does not cover product malfunctioning or failure caused by: misuse, abuse, repair work or alterations performed by non-authorised personnel, incorrect connections, exposure to harsh weather conditions, mechanical damages (including shipping accidents), and normal wear and tear. Void will perform warranty services provided that the product is not damaged during transportation.

5.1.2 Return of Goods

Goods can be returned to Void only after they have been granted a Return Merchandise Authorization (RMA) number to be attached to the external packaging. Void (or its Authorized Service Centre) has the right to refuse any returned good without a RMA number.

5.1.3 Repair or replacement

Void reserves the right to repair or replace any defective goods covered by product warranty at its sole discretion and as it deems best.

5.1.4 Cost and responsibility of transport

The purchaser (or end user/customer) is solely responsible for all transportation costs and risks associated with sending warranty covered goods to Void or its Authorized Service Centre. Void will assume full responsibility and cover all costs incurred to send the goods back to the purchaser (or end user/customer).

5.2 Assistance

All servicing and repairs for Void Bias series amplifiers is handled by Powersoft Worldwide. Please follow the instructions below in case of any difficulties.

There are no user-serviceable parts in your amplifier. Refer servicing to qualified technical personnel. In addition to having an in-house service department, Powersoft supports a network of authorized service centres. If your amplifier needs repair contact your Powersoft dealer (or distributor). You can also contact the Powersoft Technical Service department to obtain the location of the nearest authorized service centre. Even though most product malfunctioning can be solved at your premises through Powersoft Customer Care or your direct knowledge, occasionally, due the nature of the failure, it might be necessary to return defective products to Powersoft for repair. In the latter case, before shipping, you are kindly asked to follow step by step the procedure described below: Obtain the "Defect Report Form" by contacting our Customer Care Department via email: service@powersoft.it or download the "Defect Report Form" from Powersoft's website (http://www.powersoft-audio.com/en/support/service).

Fill out one "Defect Report form" for each returned item (the form is an editable tab guided document) and save as your name, amp model and serial Number (for example: distributornamek10sn17345.doc) providing all required information except the RMA code/s and send it to service@powersoft.it for Powersoft approval.

In case of defect reports approved by the Powersoft Customer Service Representative you will receive an RMA authorization code (one RMA code for each returning device). Upon receiving the RMA code you must package the unit and attach the RMA code outside the pack, protected in a waterproof transparent envelope so it is clearly visible.

All returning items must be shipped to the following address:

Powersoft
Via Enrico Conti, 13-15
50018 Scandicci (FI) Italy

In case of shipment from countries NOT belonging to the European Community make sure you have also followed the instructions described in the document available for download at the TEMPORARY EXPORTATION / IMPORTATION PROCEDURE link at http://www.powersoft-audio.com/en/support/service.

Thank you for your understanding and cooperation and continued support as we work to improve our partnership.

Bias VQ HDSP+ETH

Channel Handling	
Number of channels	4 in / 4 out mono, bridgeable per ch. pair
Analog input connectors	4x XLR
Speaker connectors	4x NL4MD speakON

Audio	
Gain	32 dB, 30 dB, 28 dB, 26 dB, 24 dB, 22 dB, 20 dB, 18 dB, 14 dB, 4 dB, -∞, user selectable
Input sensitivity @ 8 Ω	1.94 V / +8 dBu
Max input level	6 V / +17.8 dBu
Frequency Response (±0.5 dB , 1 W @ 8 Ω)	20 Hz - 20 kHz
Crosstalk (1 kHz)	> 70 dB
S/N ratio (20 Hz - 20 kHz A-Weighted @ 8 Ω)	> 110 dB
Input impedance	10 kΩ balanced
THD+N (from 0.1 W to Full Power)	< 0.02% (typical < 0.005%)
DIM (from 0.1 W to Full Power)	< 0.02% (typical < 0.005%)
Slew Rate (input filter bypassed @ 8 Ω)	> 40 V/µs
Damping Factor @ 8 Ω, 20 Hz - 100 Hz	> 5000

DSP*	
Architecture	Analog Devices SigmaDSP® 50 MIPS
AD/DA converters	Cirrus Logic® 24 bit 48 kHz
Internal precision	28 bit data path with 56 bit internal processing
Latency	1.0 ms fixed latency architecture
Memory/Presets	Up to 4 local presets, unlimited via Armonía Pro Audio Suite™ software
Delay	340 ms input delay 10 ms per channel output delay
Equalizer	Parametric IIR: peaking, hi/lo-shelving, all-pass, band-pass, band-stop, hi/lo-pass
Crossover	Butterworth, Linkwitz-Riley, Bessel: 6 dB/oct to 48 dB/oct (IIR)
Limiters	Peak limiter, RMS limiter, frequency dependent RMS limiter
Remote control	Armonía Pro Audio Suite™ software

Networking*	
Standards compliance	1x RJ45 auto-sensing 10/100 Mbps UTP port
Supported topologies	star, daisy-chain, closed loop
Remote interface	Armonía Pro Audio Suite™
Auxiliary supply	12 V / 1 A max for DSP management and remote on/off via 2 pin Phoenix² MCV 1,5/ 2-G-3,81

Output Stage	
Maximum output power per channel @ 8 Ω	750 W
Maximum output power per channel @ 4 Ω	1250 W
Maximum output power @ 8 Ω Bridged	2500 W
Max output power per ch. @ Hi-Z distributed line 70V**	1000 W
Max output power per ch. @ Hi-Z distributed line 100V**	1250 W
Maximum unclipped output voltage	135 V_{peak}
Maximum output current	65 A_{peak}

The power figure is calculated by driving and loading symmetrically all the channels: uneven loads allow to achieve highest performance.

AC Mains Power				
Power supply	Universal regulated switch more with PFC			
Nominal voltage (±10%)	100-240 V @ 50-60Hz			
Power factor (> 500 W ouput)	> 0.95			
Consumption/current draw	@ 115 V		@ 230 V	
Idle	64 W	0.6 A	64 W	0.51 A
1/8 Max Output Power @ 4 Ω	605 W	11.6 A	605 W	5.8 A
1/4 Max Output Power @ 4 Ω	1772 W	22.2 A	1772 W	11.1 A
AC Mains connector	IEC C14 inlet; region-specific power cord provided			

Thermal		
Operating temperature	0° - 45° C / 32° - 113° F	
Cooling	Fan, continuously variable speed, temperature controlled, front to rear airflow	
Thermal dissipation		
Idle	218 BTU/h	55 kcal/h
1/8 Max Output Power @ 4 Ω	955 BTU/h	241 kcal/h
1/4 Max Output Power @ 4 Ω	1781 BTU/h	449 kcal/h

Construction	
Dimensions LxHxW	483 mm x 44.5 mm x 379 mm (19.0 in x 1.8 in x 14.9 in)
Weight	7.4 kg (16 lb)

* Only for HDSP+ETH model.

** DSP preset or external high-pass and voltage limiter required.

North America

Void Acoustics North America

503-854-7134

sales.usa@voidacoustics.com

Head Office

Void Acoustics
Unit 15 Dawkins Road Industrial Estate
Poole
Dorset
BH15 4JY
England

+44 (0) 1202 666 006

info@voidacoustics.com

Registered in England & Wales No. 07533536

www.voidacoustics.com