

QSP Stereo Amplifier



Owner's Manual

QUAD

IAG House, Sovereign Court, Ermine Business Park, Huntingdon, Cambs, Pe29 6XU, UK
Tel: +44(0)1480 447700 Fax: +44(0)1480 431767 <http://www.quad-hifi.co.uk>
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QUAD *the closest approach to the original sound*

IMPORTANT SAFETY INFORMATION

- Read these instructions.
- Keep these instructions.
- Heed all warnings.
- Follow all instructions.
- Do not use this apparatus near water.
- Clean only with dry cloth.
- Do not block any ventilation openings.
- Install in accordance with the manufacturer's instructions.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not defeat the safety purpose of the polarized or grounding type plug. A polarized plug has two blades with one wider than the other. A grounding type plug has two blades and a third grounding prong. The wider 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.
- Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where they exit from the apparatus.
- Use only attachments/accessories specified by the manufacturer.



- Use only with a 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.
- Unplug this apparatus during lightning storms or when unused for long periods of time.
- 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.
- Warning: To reduce the risk of fire or electrical shock, do not expose this product to rain or moisture. The product must not be exposed to dripping and splashing and no object filled with liquids such as a vase of flowers should be placed on the product.
- No naked flame sources such as candles should be placed on the product.
- Caution: Changes or modifications not expressly approved by the manufacturer could void the user's authority to operate this device.
- Warning: The mains power switch for this appliance is located on the rear panel. To permit free access to this switch, the apparatus must be located in an open area without any obstructions.



CAUTION!
RISK OF ELECTRIC SHOCK
DO NOT OPEN



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

ADVERTISSEMENT: RISQUE DE CHOC ELECTRIQUE-
NE PAS OUVRIR



This symbol indicates that there are important operating and maintenance instructions in the literature accompanying this unit.



This symbol indicates that dangerous voltage constituting a risk of electric shock is present within this unit.

MAIN SERVICE CENTRES IN THE UK

U.K.

Service Address
IAG Service Centre,
Unit 4, St Margaret's Way,
Stukeley Meadows Industrial Estate,
Huntingdon, Cambs,
PE29 6EB
England
Tel: +44 (0) 1480 45256
Fax: +44 (0) 480 413403
www.quad-hifi.co.uk

QUAD



QSP Stereo Amplifier
USER GUIDE

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OPERATING YOUR EQUIPMENT

Switching On

The on/off switch has a rocker action; press the right hand side to switch the equipment on and the left hand side to switch it off.

When the amplifier is part of a Quad Elite system using the special AMPBUS cable, this switch should normally be left switched on as the amplifier will be remotely switched from the QUAD Elite Preamplifier or the Elite system handset. The power LED will glow red when the amplifier is in standby and white when on.

Where the QUAD QSP Stereo Amplifier is not part of a Quad Elite system, the MAINS On/Off switch should be switched off when the amplifier is not in use.

Note: Always switch on the power amplifiers after the rest of the system and switch them off first. Ensure the system volume control is at minimum when switching your equipment on or off.

Standby Mode

The QUAD QSP Stereo Amplifier include a standby function consuming barely a watt in this mode. The standby is operated via a front panel control, and also via AMPBUS, a proprietary balanced audio connection from other QUAD Elite products. This synchronizes the power amplifier with the rest of the QUAD system, making the standby operable by remote control.

Amplifier Protection Trip

The QUAD QSP Stereo Amplifier is protected by a resettable current trip which interrupts the AC Power supply if the amplifier is grossly overloaded for a period of time. To restore operation, simply press the black reset button on the back panel. It is thus fully protected against gross overload, short-circuited output etc, but not necessarily against seriously inadequate ventilation.

Loudspeaker Phasing

Make sure that both channels are connected in phase. The positive (red) output terminal of each channel should be connected to the positive (red) terminal of the speaker. Special care should be take when bi-wiring as phase becomes critical.

If there is a doubt about the way the loudspeakers are connected, check their phasing by playing a mono source - the sound should appear from a point midway between the two loudspeakers. If this position is indefinite, reverse the connections to one of the loudspeakers. Correctly connected loudspeakers give a definite centre sound source with fuller bodied tenor and bass registers.

Headphones

There are a number of suitable switch units available designed to enable the loudspeakers to be switched off when headphones are plugged in. Most of these incorporate a simple attenuator circuit to permit operation at normal settings of the control unit volume control.

Maintenance

The surface of the equipment may be cleaned with a barely damp cloth provided the power has been switched off. Solvent based cleaners should not be used.

INTRODUCTION

The Quad QSP Stereo Amplifier is primarily intended for use with very high quality sound reproducing domestic systems and we hope that they will give you much pleasure. The amplifier can either be used in conjunction with a Quad Elite pre-amplifier or other high qualtly pre-amplifiers can be used.

You should read the following useful notes carefully before you begin to install and use the equipment. The notes are directed towards responsible adults who can ensure safe installation of the equipment. Minors should not attempt electrical installation or carry out changes.

Quad QSP Stereo Amplifier weighs approximately 12.5kg and is built to be robust. It can deliver 140W into an 8 ohm load, while maintaining distinctive sound qulity remember to check that any surface on which you place it is stable and is able to support this weight.

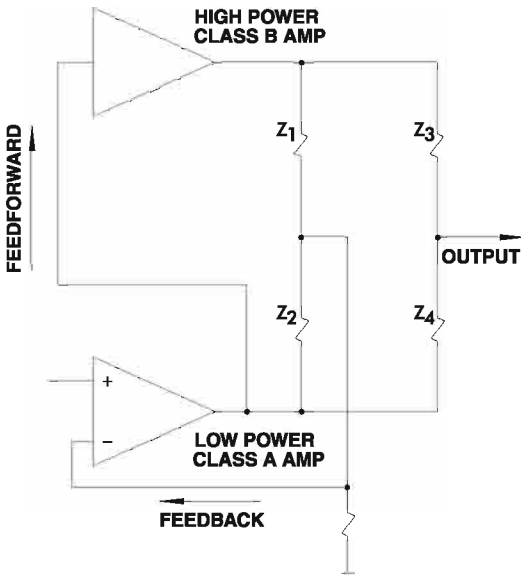
There are no user adjustable parts inside the equipment. You should refer to a qualified engineer or return the equipment to either the dealer or the Quad distributor for any servicing requirements.

Current Dumping

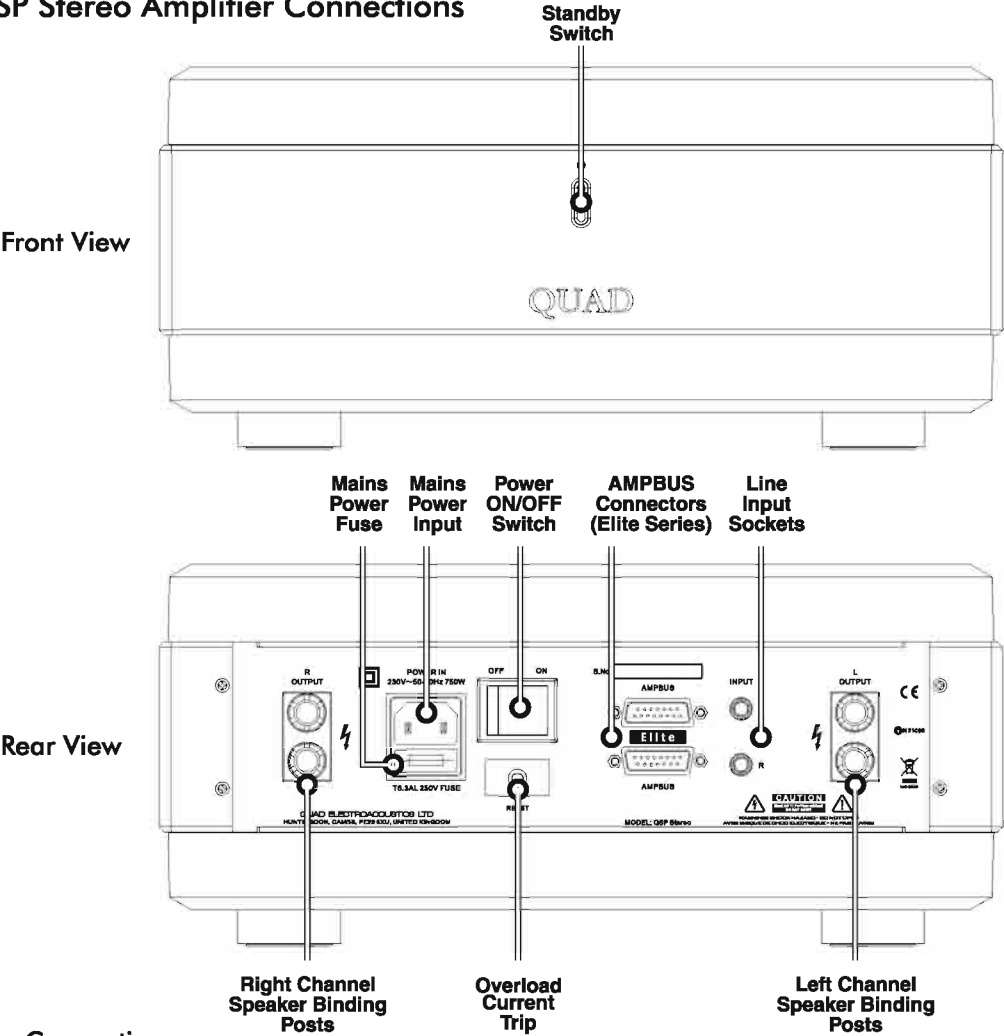
The QSP Stereo Amplifier incorporates QUAD's patented current dumping technology developed by QUAD's founder Peter Walker, and is one of the finest audio amplifiers available. One of the few truly innovative amplifier topologies, it is essentially a combination of two amplifiers to give the best of both in each channel. The current dumping circuit like the Quad QSP Amplifier consists of a very high quality class A low-power amp which provides the details of the signal, while a high-power current dumping section provides the grip to keep the speakers under control. These two amplifier circuits are combined with a precision network to perfectly impose the finesse of the class A output onto the power of the current dumper.

Problems of crossover distortion, quiescent current adjustment, thermal tracking and transistor matching all disappear. There are no internal adjustments or alignments and the choice of power transistor types is less restrictive.

Simplified Diagram of a current dumping amplifier

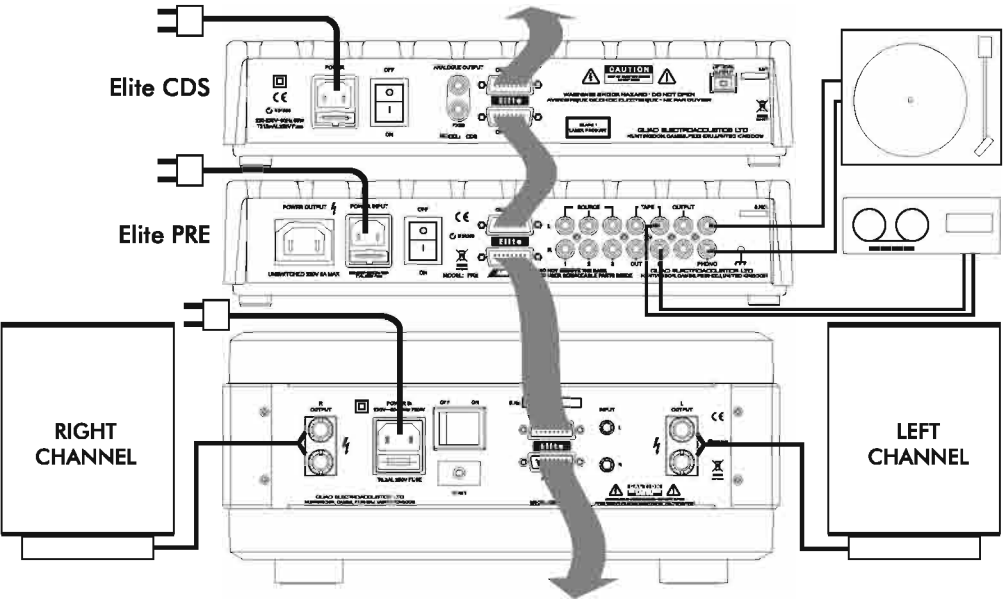


Quad QSP Stereo Amplifier Connections



Elite System Connections

The diagram shows the QUAD QSP Stereo Amplifier connected to some Quad Elite system components in a typical arrangement. The innovative ambus system simplifies connections and provides optimal sound fidelity.



PACKING LIST AND UNPACKING THE EQUIPMENT

The packaging for all Quad Amplifier products contains the following items:

- One QUAD Stereo Power Amplifier
- One IEC mains lead fitted with an appropriate mains connector;
 - for UK this is QUKES2B
 - for Europe this is QE2P2S2
 - for USA, Canada, Japan and Korea this is QU3ES2C
 - for other territories an appropriate cable will be supplied.
- Instruction Manual
- Warranty Registration Form
- One set of packing materials comprising:
- One set of expanded foam end caps
- One cardboard carton
- One polythene protective bag

In addition the Quad QSP Stereo Amplifier contains:

- One 1 m long Elite Ambus connector and cable, Q37404A

Consult the dealer from whom you purchased the equipment if any of these items are not present.

Retain the packing materials for future use or return them to your dealer. If you decide not to keep the packing, please dispose of it sensibly. The paper and plastics are recoverable and may be taken to an appropriate recovery service.

Please retain the user manual and the information concerning the date and place of purchase of this equipment for future reference. If you decide to transfer the equipment to a third party, please ensure all the instructions are passed on with the product.

INSTALLATION

The QUAD QSP Stereo Amplifier has a standby mode . If it is used close to a record deck or other equipment susceptible to hum, it may be necessary to increase the spacing between those units and the power amplifier/s. The QUAD QSP Stereo Amplifier will be warm when running, the actual temperature depending on the power output. A resettable current trip will automatically switch the amplifier off under gross overload or short circuit output etc. The fins of the heatsink should be kept clear of obstruction to allow adequate ventilation in normal use.

See Amplifier Protection on page 10

Checking the AC power supply

The QUAD QSP Stereo Amplifier is supplied in four versions suitable for connection to 230V, 220V, 115V or 100V AC power supplies. Before connecting the amplifier check that you have the correct version - if the amplifier is connected to a lower voltage than Marked, the maximum output power will be lower than specified. Before connecting to the AC power supply, check that the voltage range marked on the back corresponds with that of the supply. Within the EC, the nominal mains voltage is 230V AC. Please check with the dealer if you have any doubt as to the voltage in your area or intend to use the equipment in regions which use different mains voltages.

Fuses

If you are in any doubt of the correct operational voltage, ask a qualified electrician Before applying power to the equipment. The Quad electronic's Amplifier will work correctly within standard tolerances of this voltage. The mains supply fuse of the Quad electronic's Amplifier is accessible on the rear panel after the IEC mains plug has been removed. In the rare event that the amplifier has broken, you should first check for any obvious cause before replacing the fuse with one of the correct rating and type. The correct fuse values are:
220 - 230V (UK, EU, Korea, etc.) T 6.3 AL 20mm Slow Blow
100 - 120V (USA, Japan, etc.) T 10 AL 20mm Slow Blow
You should switch off the equipment and remove the connection to the mains power outlet before changing the fuse.

Connecting to the AC power supply

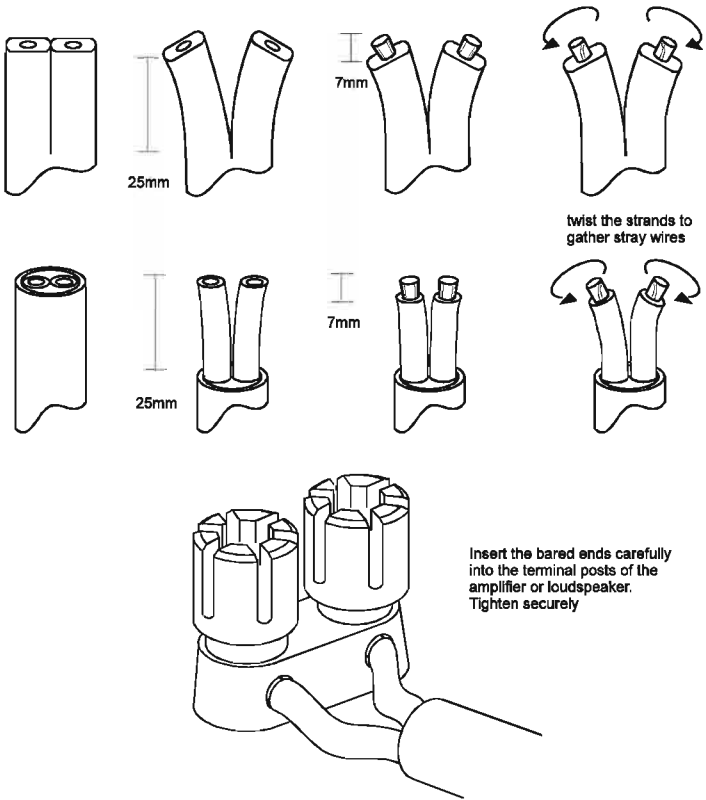
Quad electronic's amplifier supplied is provided with a mains cable fitted with an appropriate mains plug. This plug should not be cut from the cable. If, for any reason, the plug is removed, it must be safely disposed of. It must never be plugged into a mains outlet.
Any replacement plug should be wired to the supplied mains cable as follows:
The BROWN wire must be taken to the LIVE terminal
The BLUE wire must be taken to the NEUTRAL terminal
In the UK a fused 13 Amp mains plug should be fitted with a fuse link rated to 13 Amp which conforms to BS1362. In other countries a value between 10 Amps and 15 Amps should be used at either the wall socket or at the mains distribution board. If you are in any doubt you should consult a qualified electrical engineer.

Use of correct connectors and cables

You should ensure that any cables which are used with Quad equipment are properly terminated and that the cable is appropriate to the task. This is particularly important with loudspeaker cables and connections. If you are in any doubt you should consult your dealer.

Loudspeaker Cables

Loudspeaker cables should be carefully prepared. The following sketches show the preparation of a speaker cable for use with Quad QSP Stereo Amplifier and loudspeakers. When stripping the insulation, be careful not to cut into the wire. Make sure that you collect together all the strands of wire as stray wires may cause shorting which could result in damage or cause a fire.



When estimating the length, provide sufficient loudspeaker cable to enable access and tidy securing. Some cable is quite heavy and you should be careful to place your cables so that they do not cause undue strain on the binding posts of the amplifier or loudspeaker.
Note: *Ensure that cables used with Quad equipment are appropriate to the task and correctly terminated. For safety reasons Quad equipment is designed not to accept 4mm connectors.*

Signal Cables

Signal cables should be properly terminated and fully screened to minimise hum. When the QUAD QSP Stereo Amplifier is used as part of a Quad Elite system, you should use The Elite AMPBUS lead supplied to connect to the output of the Elite pre-amplifier or Elite AV processor. Signal on the Elite AMPBUS is in differential mode, which has performance advantages over conventional unbalanced signal connections. When the QUAD QSP Stereo Amplifier is used with other equipment, you should use an appropriate lead to connect to the phono input. Consult your dealer if in doubt.

Audio Refinement & Screening

The new design of the QUAD QSP Stereo Amplifier, while using the principals of the original genius of Peter Walker's design, embodies contemporary audiophile principals. Use of tight tolerance parts in key areas guarantees both consistency between channels and production units. Audio grade components, from the large power supply capacitors, to the control of the amplifier open loop gain, are all carefully chosen for their combined sound quality. Components from around the globe were gathered together to fine tune the performance. The signal path was kept as simple as possible and new techniques used to ensure musical integration. The result is the traditional QUAD sound, with all the detail and elegance demanded today.

We have done intensive research on screening options. Flow of magnetic fields and cross-talk were carefully highlighted. New PCB layouts to screened signal paths and custom made transformers, alongside shields protecting amplifier boards from mains hum are few among various other innovations; the result being very clean technical performance and a high dynamic range.

The Quad QSP Stereo Amplifier

The Quad QSP is a versatile Stereo power amplifier that can be used with any high quality stereo pre-amplifier, integrated Quad or other Elite control unit equipments from the Quad Elite series to provide an integrated fully remote controlled versatile audio system.

The performance of Quad Elite series power amplifiers is as accurate as it is possible to achieve by careful design, selection of components and rigorous test procedures.

Quad Electrostatic Loudspeakers

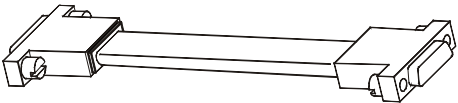
Elite series and QSP/QMP amplifiers are fully compatible with the Quad ESL-63, ESL-988 and ESL-989 loudspeakers. They should not be used with the earlier model ESL which could be damaged by signal peaks unless a protection circuit is fitted inside each loudspeaker - please contact Quad Electroacoustics for details.

Running In your amplifier

The performance of amplifiers tends to stabilise after a period of use due to a number of factors associated with the physical and chemical properties of the components. We recommend that the system be run with a music signal for several hours when it is first installed. Although the changes can be quite subtle, after a few days the sound quality becomes smoother and more natural.

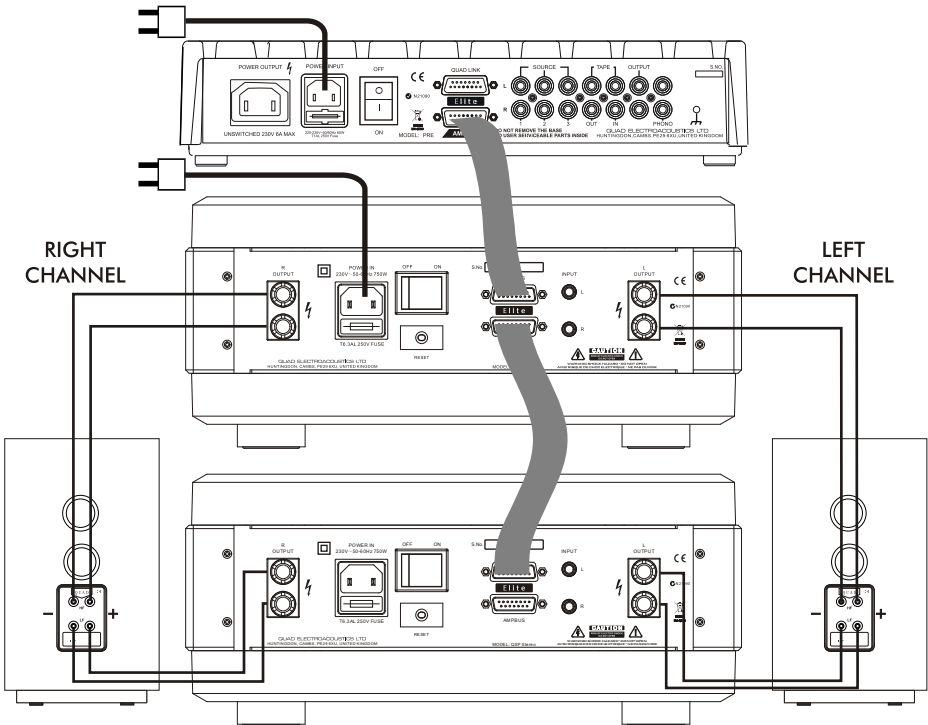
Quadlink and Ampbus Cables

Two kinds of bus are used in the Quad Elite series. QUADLINK is the link from sources like CD player and FM tuner to the QUAD Elite pre-amplifier. AMPBUS is the system linking the power amplifier to the Quad Elite pre-amplifier (and to each other in multiple amplifier arrangements). The Elite QUADLINK and AMPBUS cables are electrically and physically identical. Quad manufactures two lengths of the cable, 160 mm and 1m. The ends are terminated with male and female D type 15 way connector.



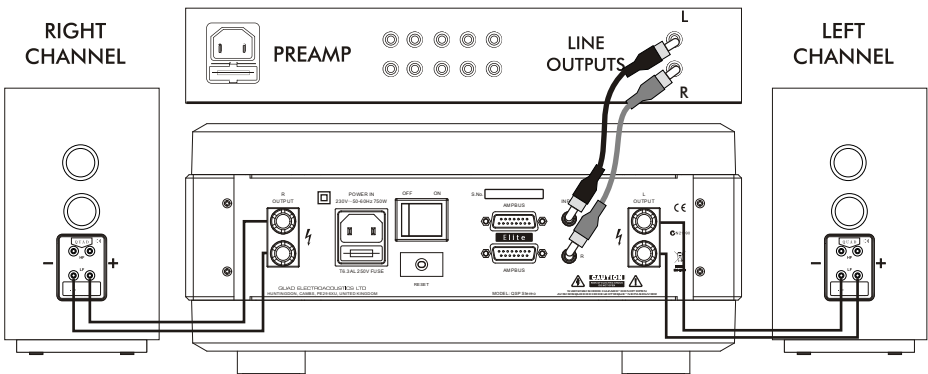
Bi- and Tri-amplification

Two or more QUAD QSP Stereo Amplifiers can be used in bi- or tri-amplified combinations, or combined with one or more Elite Pre-amplifiers by simply linking them using Quad Elite AMPBUS cables. A bi-amplified arrangement is shown below.



Connecting the Quad QSP Stereo Amplifier to non-Quad pre-amplifier sources

Connect the outputs of your pre-amplifier to the RCA signal inputs of the QSP as shown. Ensure that the Left and Right channels are correctly connected.



INFORMATION TO THE USER

Good Practice

It is always good practice to switch off equipment before connecting or disconnecting signal leads. This will prevent unpleasant or loud noises coming from the loudspeakers and avoid the risk of damage to equipment.

This equipment is double insulated and does not need a safety earth. It is important though, that any equipment connected to it is earthed according to the manufacturer’s instructions. This becomes more important if there are more than one unit connected together.

Noise Pollution

Please be aware that very high sound pressure levels can cause permanent damage to your hearing and also severe annoyance to neighbours.

Guarantee and Product Registration

Your Quad equipment is guaranteed against any defect in material and workmanship for one year from the date of purchase (proof of purchase required). We ask that you complete and return the enclosed Warranty Registration Form. Within the guarantee period, Quad will undertake replacement of defective parts free of charge provided that the failure was not caused by misuse, accident or negligence. Your statutory rights within the territory in which you purchased the equipment are not affected by this guarantee.

Quad carries out a regular review of its products and reserves the right to adjust the specifications and performance from time to time.

There are no user replaceable or serviceable parts inside this equipment. Unauthorised attempts to service or modify this product will invalidate the warranty.

Service Arrangements

The equipment should be returned to an authorised dealer for servicing, appointed service agent for your area. The addresses of Service Agents for the UK, USA and Canada are listed on the rear cover of this manual. If there is no suitable dealer in your area, please contact the distributor for the country in which it was purchased or Quad Electroacoustics Ltd.

Equipment returned for service should use the original packing. Please enclose a brief note with your name and address and the reason for returning the unit.

Compliance

Quad equipment is compliant with the relevant clauses enshrined in the following standards and directives in force at the time of the introduction of the product.

EU
Directives: 89/336/EC, 72/23/EEC
Safety: EN60065 (CB Scheme)
Emissions: EN55013, EN61000
Immunity: EN55020:2002.
The product bears the CE mark: 

USA: UL 6500:2002.

CANADA: CAN/CSA-E60065-00

SPECIFICATIONS

Quad QSP Stereo Amplifier

(Measurements made with 230V supply, one channel driven and apply to either channel)

Power output 140W into 8Ω (<0.01% THD at 1KHz)

Total harmonic distortion <0.004% (100W at 1KHz)
(THD) <0.025% (100W at 20Hz - 20KHz)

Output Impedance 0.05Ω in parallel with 1.5uH

Frequency response -1.0dB at 1Hz and 55kHz, ref. 1kHz

Power Response -0.25dB at 20Hz and 20kHz, ref. 1kHz

Input sensitivity 760mV (RCA line input)

Input impedance 10Kohms (balanced)
15Kohms (unbalanced)

Crosstalk -90dB at 1kHz (input loaded with 600Ω)

Signal-to-noise ratio (S/N) 108dB
(ref. 140 Watts) (20kHz measurement bandwidth)

Stability Unconditional with any load and input

Power Requirements 230V~50-60Hz
115V~50-60Hz
100V~50-60Hz

Standard Accessories Power cord/User manual/
Certificate/Ampbus Cable

Dimensions (mm)
(W x H x D) 328 x 149.2 x 269.6 (plus connectors)

Carton size (mm)
(W x H x D) 411 x 270 x 359.5

Weight 12.5 Kg (Net)
14 Kg (Gross)

The right is reserved to alter all performance and specifications as required