

CHAPTER COUplet 250S



Chapter Couplet 250S Audiophile Power Amplifier

The exception, not the rule...



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Important Safety Instructions

Please read all instructions and precautions carefully before operating your Chapter Couplet 250S Power Amplifier.

- 1 Please disconnect all items in your audio or AV system before connecting or disconnecting any mains or interconnect cables, or when cleaning your Chapter product.
- 2 Please ensure that your Chapter product is always terminated with a three pin AC power cord. To prevent the possibility of shock all three connections must be used.
- 3 To clean your Chapter product please use a soft damp cloth. Never use flammable or combustible chemicals.
- 4 Never operate this product with any covers removed.
- 5 Never allow the inside of this unit to become wet, or pour / spill liquids directly onto it .
- 6 Never block air flow through the vents on the side panels.
- 7 Never bypass any fuse.
- 8 Never replace a fuse with anything other than those specified.
- 9 There are no user serviceable parts within this product. If problems occur, please contact your Chapter retailer.
- 10 Never expose this product to extremely high or low temperatures.
- 11 Unplug this product during lightning storms.



From all of us at Chapter...



Couplet 250S from dream to reality...

Thank you for choosing the Chapter Couplet 250S Audiophile Power Amplifier.

It has been designed and manufactured to the highest possible standards in order to give you many years of musical enjoyment.

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Introduction

The Chapter Couplet 250S is a 'State Of The Art' audiophile two-channel Power Amplifier, that incorporates years of Research and Development in power supply and D Class Audio circuits.

The Couplet 250S features a number of new design features along with scrupulous attention to technical detail.

Our objective is to provide a product capable of great musicality and realism whilst boasting exemplary technical specifications. By bringing together engineers and designers with a lifetimes experience in audio and power system design we believe this objective has been more than achieved.

The Chapter Couplet 250S can handle all of today's high-resolution sources, without compromising fidelity, as you would expect of any Chapter product.

Our goal, as always, is to produce a true reference quality power amplifier.

A product that can be held in the highest regard from both objective and subjective perspectives.

After several years of research and development, we believe that we have succeeded in fulfilling the requirements of even the most discerning audiophile.

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Unpacking your Power Amplifier

The shipping weight of your Chapter Couplet 250S is 25 KG. Therefore, under normal circumstances, one person should be able to unpack the unit safely. If you are in any doubt, please obtain the assistance of a second person.

To avoid back injury whilst carrying your amplifier (or any other piece of heavy equipment) please crouch with a straight back and use your leg muscles.

After unpacking your power amplifier, please retain all packaging for future transport. If you move house or you need to ship your power amplifier, only the custom designed shipping carton is acceptable. Any other method of shipping may result in damage and such damage is not covered under warranty.

Please inspect your power amplifier for possible damage due to shipping. If you discover any, contact your Chapter dealer immediately.

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Break In Period

Your Chapter Couplet 250S power amplifier will deliver excellent performance straight out of the box, however, you should expect to hear it improve as it reaches its normal operating temperatures and its various components 'break-in'. In our experience the most significant changes occur within the first 30 - 50 hours use, but the unit will continue to improve in sound quality for about 100 hours, after which time it remains quite consistent.

If the power is removed and reconnected to the unit, you must allow a brief 'warm up' period for the unit to give off its best.

However, it is not recommended to leave your Chapter Couplet 250S power amplifier on permanently.



Installation

Your Chapter Couplet 250S has been designed to fit into a good quality equipment rack or amplifier stand. In most installations locating the power amplifier near the loudspeakers is best.

Where permitting, locate the power amplifier near the loudspeakers and use a longer pair of balanced interconnects to a quality pre amplifier such as a Chapter Preface unit.

The advantage to this strategy lies in the fact that the interconnects carry low current signals that are easily transmitted over distances with greater accuracy than the high current signals required by loudspeakers.

Your Couplet 250S power amplifier has been designed to drive the most demanding of loudspeakers systems which have an impedance of down to 2 ohms.

The back of your Couplet 250S power amplifier has been laid out to keep every connection accessible. We recommend that you leave some clearance behind the unit to fit cables without having to bend them excessively.

In order to conform with CE regulations your power amplifier is fitted with a rocker style power switch on the rear of the unit as well as a multifunction 'standby' touch sensor on the front of the unit. This rear mounted rocker switch disconnects power from the power supply, resulting in effective disconnection of the amplifier from the AC mains.

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Ventilation

Please allow your power amplifier to have at least five centimetres between the top cover and the next shelf up on an equipment rack.

The slotted vents on the side of the unit must not be obstructed, as this would reduce the free flow of air through the unit.



Operating Voltage and Mains Conditions

A good quality three pin, 13 ampere IEC standard, detachable mains lead is provided for use with your power Amplifier. It is recommended that you use this lead. Please contact us for advice if replacement is required.

The power supply is set at the factory to work at either 110 / 110 VAC or 220/240 VAC at 50/60Hz. Please use your amplifier in regions that have the same voltage conditions as those detailed on the back of your unit.

If you move to a country that uses a different mains voltage please consult your distributor to arrange for your amplifier to be adjusted accordingly.

Thus total audio performance is assured anywhere in the world.

Power Supply Topology

Our New 'Balanced Zero Ripple' power supply provides the amplifier sections with a rock steady Ppower supply rails, essential for deep articulate bass, as well as a grain free treble performance. You will notice that even when pushed very hard the Couplet 250S will not change its sonic presentation due to the huge demands on the power supply.

This regulated characteristic is achieved without the use of feedback and is thus able to react as quickly as the amplifier demands, no lag, no compensation, just an almost limitless reserve of power that would only normally be available on a power supply around four times the size of that found in the Couplet 250S.

Great care is taken to ensure that mains borne noise (including DC components) do not enter the amplifier and thus compromise the amplifier performance - this filtering and in some cases blocking ensures that the Couplet 250S is essentially silent.

Regulation and filtration are only part of the picture - a power supply must also be low noise, and not interfere with the other delicate parts of the circuit electrically or magnetically. It will take you only a few moments to hear that we have created an amplifier that can deliver a deftness of touch combined with tremendous punch.



Design Features

Finest Part Selection: The Couplet 250S uses the best sounding OPAMPS from Burr Brown. All electrolytic capacitors, are a considered combination of Samwha and ultra low ESR Panasonic Gold series. All components used without our power supply and amplifier design have been auditioned for both performance, consistency and durability. At Chapter we also use the finest 'Melf' surface mount precision resistors.

Balanced Zero Ripple Power Supply: This technology allows the benefits of a regulated supply without the size, heat and wasted energy of a conventional design. The demands on the power supply rails are balanced between positive and negative in real time to ensure lowest levels of ripple and noise to feed the amplifier circuits.

Massive Energy Storage: By combining the benefits of the Balanced Zero Ripple supply with a large number of ultrafast high voltage capacitors we can ensure that even the most demanding of musical passages do not perturb the voltage rails of the amplifier, allowing for effortless reproduction of audio. This energy storage is necessary for providing sustained deep and controlled bass.

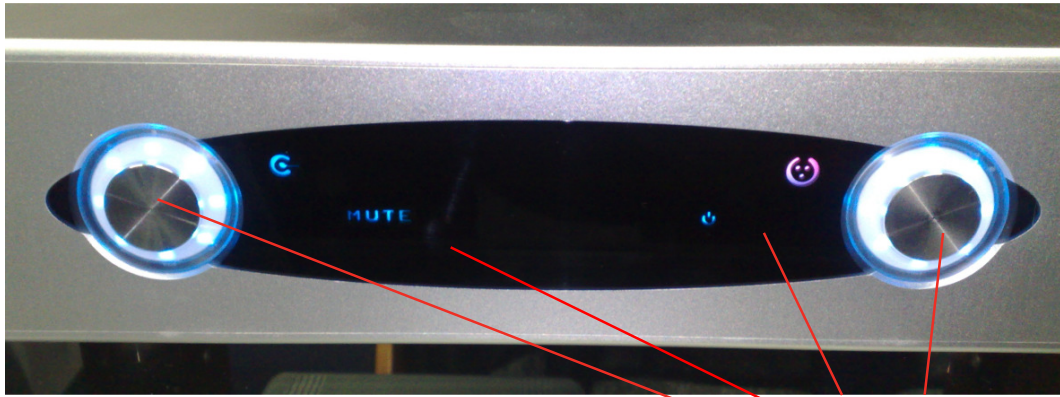
Balanced ground layout: Cancels the ground currents that can cause Inter-modulation distortion and crosstalk in a conventional stereo design.

Full Immersion Gold Printed Circuit Boards: Audio signals travel on gold track. As you would imagine, compared to copper and gold plate this is a very expensive to manufacture, but the sonic benefits are hugely tangible in terms of space, air and dynamics.

Unique D Class amplifier circuit: Our amplifier circuitry is elegant and simple. It employs post filter feedback and has a flat harmonic distortion characteristic across the entire audio bandwidth. The circuit combines the best virtues of both valve and solid state designs with unparalleled dynamic range.

Touch Sensor operation: In order to give the user full control over the amplifier, a series of touch sensors have been implemented into the unit that are subtle on the eye, and yet easy to use. These sensors can be used to change inputs, mute the amplifier, or change the lighting conditions on the unit.





'Touch sensor' style standby switch

Front Panel

When applying power to your Chapter Couplet 250S Power Amplifier for the first time please ensure to operate the rear panel AC mains switch. This allows the power amp to enter standby mode. Whilst in Standby mode the sensitive voltage gain stages are still powered up to ensure that the unit will sound at its best after only a short period of time. Whilst in standby mode the power amplifier draws around 3 watts. Once the Couplet 250S is in standby mode an area of the Perspex front panel will be light red.

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Activation:

- To fully activate the unit: Touch any of the touch sensor buttons (except the standby button).

Mute / Unmute:

- To Mute the amplifier: Press and hold the MUTE button for 2 seconds. The amplifier ring lights will turn red to indicate the amplifier is muted.
- To Unmute the amplifier: Press and hold the MUTE button for 2 seconds. The amplifier lights to turn from red to blue to indicate the amplifier is in operation.

Earth Select:

Press and hold the MUTE button for 5 seconds to toggle the 'earth select' switch. The default setting for the Couplet 250S are shown on the table on page 11. When toggling the earth select relay in this way the appropriate red LED will flash for 5 seconds to indicate the change in earthing arrangements. The LED will flash quickly for selected and flash slowly for deselected.



Front Panel con't

Earth Select Con't:

These settings are then stored in memory.

After the flashing has stopped the amplifier will be unmuted and operated as normal.

Input Selected	Flashing Speed	Description
RCA Input (Option Recommended for use with Chapter Product)	Fast	Gain stage input COLD connection is connected to System 0v (AGND). RCA Input connected between AGND & HOT connection (AGND is floated from the chassis via a 100Ohm Wire-wound resistor)
RCA Input	Slow	Gain stage input COLD floated from System 0v (AGND) via a 100K Impedance. RCA Input connected between COLD & HOT connection (AGND is floated from the chassis via a 100Ohm Wire-wound resistor)
XLR Input (Option Recommended for use with Chapter Product)	Fast	Gain stage input HOT & Cold are directly connected to XLR Pins 3 & 2 respectively. System 0v (AGND) is connected directly to the System Chassis GND. (AES recommended Balanced Input Specification)
XLR Input	Slow	Gain stage input HOT & Cold are directly connected to XLR Pins 3 & 2 respectively. System 0v (AGND) is floated from the chassis via a 100Ohm Wire-wound resistor)

Input Select:

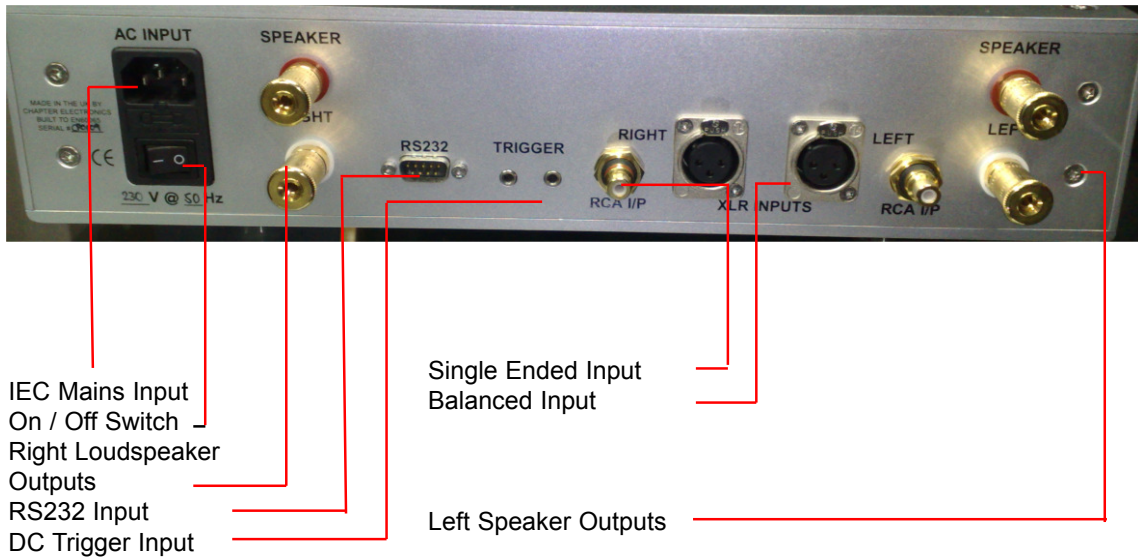
On the perspex inner front panel, you can select either the RCA or XLR inputs by pressing and holding the appropriate area of the front panel. These are shown as symbols for each input as shown above. Touch the required symbol for 2 seconds to select the desired input.

Unit Brightness:

There are two rings of blue amplifier status lights on the Chapter Couplet 250S power amplifier;

If you do not wish to have the lights on or require them to be dimmer, touch and hold the left stainless steel disc until the lights dim to the appropriate setting. To increase the unit brightness touch and hold the right stainless steel disc until the lights reach the desired level.





Rear Panel

1 True Balanced Inputs: Accepts signals from pre amplifiers or digital components with a variable analogue output via high quality neutrik XLR connector. The pin assignments conform with the AES standard of pin 1 ground, pin 2 signal +, pin 3 signal - and the connector ground being chassis ground. In order to maintain absolute phase, please check to make sure that your pre amplifier has the same pin assignments.

2 Single-ended Inputs: Your Chapter Couplet 250S power amplifier can also accept RCA single ended interconnect cables.

3 WBT 0765 Speaker Binding Posts: All Chapter Audio amplifiers are fitted with WBT binding posts. These high current, five way, insulated connectors are extremely well made and are the finest sounding connectors on the market. The 'Red' connectors are positive and the 'White' connectors are phase negative**. Ensure that the binding posts are finger tight when connecting 'spades'.

4 DC Trigger: The Couplet 250S is fitted with a DC trigger. This will allow for remote operation of the unit with connected to either a 5 or 12VDC source.

5 IEC Mains Input:

Please use an earthed 3 Pin Mains lead with your Couplet 250S at all times. Ensure the amplifier is operated at the correct mains voltage as indicated on the back of the unit.

If you will not be using the unit for long periods of time, for example going on holiday, it is best to totally disconnect the amplifier from the AC mains by removing the moulded plug from the wall socket.

** (All Chapter Amplifier are wired with left and right amplifier channels 180 degrees out of phase internally. This is for PSU abalancing purposes and is corrected at the loudspeaker terminals. The right amplifier channel "RED" loudspeaker terminal is electrically connected to system 0v (GND). Please consult your retailer before connecting this unit to any powered or ground referenced equipment)



Rear Panel Continued

6 RS232 Port:

The Couplet 250S can be controlled via its RS232 control port.
A list of commands is detailed below:

#CH-CO-ON

If in Standby then exit from Standby otherwise do nothing.

#CH-CO-OFF

If not in Standby then enter Standby otherwise do nothing.

#CH-CO-RING-1..100

Set ring PWM brightness level to value specified between 1..100 and store to memory. #CH-CO-BUTTON-1..100

Set button PWM brightness level to value specified between 1..100 and store to memory.

#CH-CO-SEL_XLR

If not already selected then select XLR Input

#CH-CO-SEL_RCA

If not already selected then select RCA input.

#CH-CO-SEL_EARTHSEL_RCA-ON

. Sets EARTHSEL Relay to be connected for RCA input

#CH-CO-SEL_EARTHSEL_RCA-OFF

Sets EARTHSEL Relay to be disconnected for RCA input

#CH-CO-SEL_EARTHSEL_XLR-ON

Sets EARTHSEL Relay to be connected for XLR input

#CH-CO-SEL_EARTHSEL_XLR-OFF

Sets EARTHSEL Relay to be disconnected for XLR input

#CH-CO-MUTE

If not already muted then Mute Amplifier

#CH-CO-UNMUTE

If not un-muted then Un-Mute amplifier

CH-CO0 = Off - Turns the Couplet 250S Off remotely

CH-CO1 = On - Turns the Couplet 250S On remotely

Once a correct signal is received by the Couplet 250S, the unit will send back the signal ' Chapter Couplet 250S OK'

9600 Baud, 8 Bit, 1 stop bit, no parity, No Flow Control

Please note that RS232 control takes precedence over manual control.



Specifications

Electrical

Output Power	225 Watts per channel 8 Ohms, both channels driven 450 Watts per channel 4 Ohms, both channels driven	
THD + N	Less than 0.01% at 1KHz. Less than 0.02% at 1KHz.	100 watts 8 ohms (using AUX0025 Filter) 100 watts 8 ohms (22Hz to 22kHz bandwidth)
IM Distortion	Better than -100dB (19+20KHz dual tone test - 1 KHz product at 1V input)	
Frequency response	5Hz to 65KHz	+0 - 3dB
Common mode rejection ratio	Better than -75dB (1kHz @ 0dBV)	
Gain	26dB	

Audio inputs

Impedance (unbalanced)	47K Ohms
Impedance (balanced)	94K Ohms

Audio outputs

Impedance	Less 0.05 Ohms 20hz to 20KHz
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Mechanical

Input sockets	1 pair of XLR for balanced line operation 1 pair of RCA Phono for single ended operation
Output sockets	1 Pair of WBT output terminals per channel
Other Sockets	DC Trigger input. RS232 connector,
Finish	Fully bead blasted, anodised aluminium alloy casework.
Power on/off	Switch and indicator. IEC mains input socket .
Weight	Approx. 25 Kg
Size	390 x 108 x 300 mm (WxHxD) approx.

Note: Although the information given is in good faith, Chapter Electronics reserves the right to improve specifications and details without notice.



Conformity

CE Declaration of Conformity

The conformity of the designated product with the provisions of Directive number 89/336/EEC (EMC) is proved by full compliance with the following standards:

Standard number	Date of Issue	Test type
EN55013	1994	Conducted emissions
EN55013	1994	Absorbed emissions
EN60555-2	1987	Harmonics
EN60555-3	1987	Voltage fluctuations
EN55020	1987	Immunity
EN60065	1993	General requirements *

* **to include:** Components, Electrical connections and mechanical fixings, External flexible cords, Fault conditions, Heating under normal conditions, Insulation requirements, Ionising, Marking, mechanical strength, Parts connected to the mains supply, Shock hazards under normal operating conditions, Terminal devices.

Chapter Electronics Ltd. also declares that this product conforms with the Low Voltage Directive 73/23/EEC 89/336/ EEC as amended by 92/31/EEC and 93/68/EEC.

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Acknowledgements

Chapter would like to thank the following organisations for their help and support in developing this product

Our long suffering wives and families..... :-)



Warranty Information

This product is guaranteed under the conditions that apply in the Country of purchase. The normal guarantee runs from a period of two years from date of purchase.

In addition to any statutory rights the customer may have, we will replace any parts that have failed due to faulty manufacture.

Warning: Please refer all service enquiries to authorised Chapter Dealers only. Unauthorised servicing or dismantling of the product invalidates the manufacturer's warranty.

If you are unsure about any aspect of obtaining service, please contact your Chapter dealer. Should you require a list of local dealers, please contact the Chapter offices, or your national distributor.

Please keep a copy of the sales receipt to establish the purchase date of the product.

Please ensure that your equipment is insured by you during any transit or shipment.

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Contact Information

Chapter Electronics Ltd
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Kings Hill, West Malling
Kent
ME19 4AU
United Kingdom

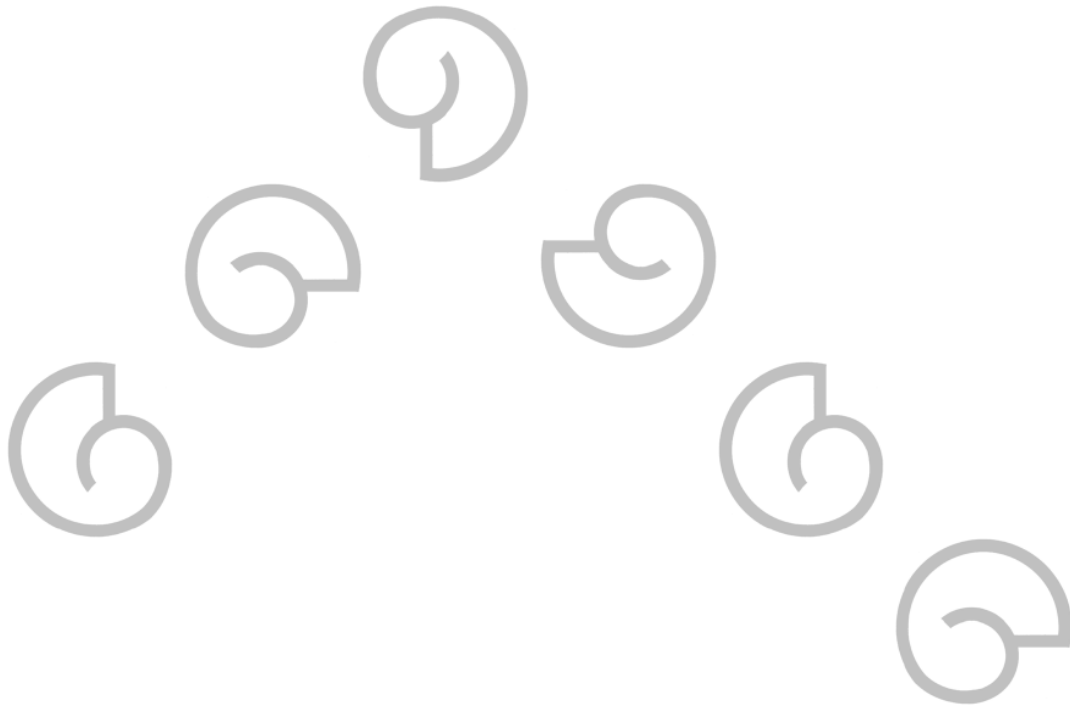
www.chapterelectronics.co.uk
info@chapterelectronics.co.uk

Tel: +44 (0)208 1235533

VAT Number: 758 2309 15
Company Number: 4371385

Notice: Each Chapter Couplet 250S Power-amplifier is unique in its manufacture. We use only the finest suppliers with the metalwork being machined by a local ISO 9002 quality assured firm. Due to the quality of raw material and finish style adopted for Chapter products it is possible to see the natural alloy grain structure, giving each unit its own individual Signature. Customers should accept and understand that there are slight differences between units and that this is down to the natural grain in the metal.





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