5: Maintenance & Guarantee

5.1 Maintenance

Warning: The internal circuitry of this amplifier operates at high voltage. Disconnect the suppiy before removing any covers, and ensure that the reservoir capacitors are discharged before touching any internal components. Refer servicing to a qualified technician.

Fuses: The AC mains input power to the amplifier is protected by a 20mm T6.3A fuse located in the power supply. For access to the fuse, remove the top cover from the amplifier. Each channel has two D.C. supply 20mm F5A fuses mounted on the P.C.B. There is one fuse for each supply rail. The driver stages on each channel are protected by three fusible resistors rated at 0.5 Watt, 100 Ohm. If these fail they must be replaced by the same type of component for continued protection.

Basic Maintenance: As with all high-quality Audio Equipment, the overall performance is highly-dependant upon healthy connection leads. Therefore it is essential that these are checked periodically for wear and tear and replaced as the need arises.

5.2 Your Guarantee of Satisfaction

This product is guaranteed to the original purchaser against defects in material and workmanship for one year from the date of initial purchase. Activate this guarantee at the time of purchase by returning the Guarantee Card to the address below. Keep a copy of your sales receipt for proof of guarantee status, should it be necessary.

If a malfunction occurs, the dealer who supplied the unit will be happy to handle the repair. When returning a unit, use the original factory carton - do not chance inadequate packing materials. Simply tape a note to the unit describing the malfunction.

If your unit is out of guarantee, we recommend that you return it to an authorised Citronic dealer for repair or service. Experienced personnel, supported by specialist testing equipment, will be able to find and correct the fault in the most efficient and cost-effective way.

If you have need to contact us about the operation or servicing of your PPX300 please write or telephone the address below:-

In the UK:

Citronic Limited
Technical Services Department
Halifax Road
Bowerhill
Melksham
Wiltshire SN12 6UB

Tel : 01225 705725 Int: +44 1225 705725
Fax: 01225 709639 Int: +44 1225 709639

3: User Notes

Balanced input connections

Balanced input connection uses 2 core screened cable for each channel, to provide rejection of stray signals picked up in the wiring. A female input XLR is wired with Pin 1 as Shield, Pin 2 Positive phase and Pin 3 as Negative phase.

In systems with long signal cable runs, where the mixer or preamplifier does not provide a balanced output, 2 core screened cable may be used with the return core common to the screen at the mixer output.

Link Connections

Two male XLR link sockets are provided to allow the input signal to be linked up to a maximum of ten other amplifiers.

Bridged Mono Mode

This function is selected with a switch on the Channel B circuit board located internally just behind the gain control, which can be accessed by removing the top cover. When in Bridged Mono mode the indicator on the front panel will illuminate and both amp modules will run soley from the input to Channel A. The gain pot of Channel A controls the output which is available from the red terminal posts only.

The minimum load impedence whilst in Bridged Mono mode is 8 ohms. Using the amplifier in Bridged Mono mode while the loudspeakers are connected for stereo will not cause any damage, but will result in poor performance due to the channels being driven out of phase from the input of Channel A. Applying a signal to the input of Channel B will have no effect at all.

User Notes

It is recommended that, in order to protect the loudspeakers, the amplifier gain controls should be turned fully anticlockwise (minimum gain) before switching on or off any preamplifier, mixer, crossover, etc., wired to the input. This precaution will prevent transients being amplified. The amplifier is fitted with a switch-on clamping circuit which limits the gain for two seconds after a supply interruption in order to protect the load.

Ensure that the loudspeakers used are adequately rated for use with the amplifier. Citronic Ltd will not accept responsibility for damage to any transducer of the load.

Avoid overdriving the amplifier so that the clip indicators are flashing constantly as not only will this produce objectionable distortion, but the harmonics caused by clipping may overload loudspeaker drive units.

If the clip indicator stays on permanently with the gain control at minimum, this indicates that the thermal trip on the heatsink has opened - allow the amplifier to cool. The trip will automatically reset when normal operating temperature has been re-established.

The amplifier is designed to drive 4 to 8 Ohm loudspeaker loads, and has ample peak current drive available to deal with fluctuations in loudspeaker impedance. It is not designed to drive loudspeaker loads of less than 4 Ohms nominal impedance, and attempting to use the amplifier in this way may result in distortion and over-heating.

2: Installation Notes

AC supply connection

The amplifier is fitted with a heavy duty permanently attached mains cord. Plug and socket connection is not fitted in the interest of reliability. An adequately rated, stable A.C. supply should be used. For 240 Volt operation, the supply to each amplifier should be fused at 13 amperes. If a system power switch is fitted ensure that it is of adequate rating for a 6 ampere inductive load. The amplifier casing must be earthed for safety reasons. If mains hum caused by multiple earthing is a problem, the earth link switch on the rear of the amplifier may be used to break the connection between the amplifier signal earth (0 Volt line) and the chassis.

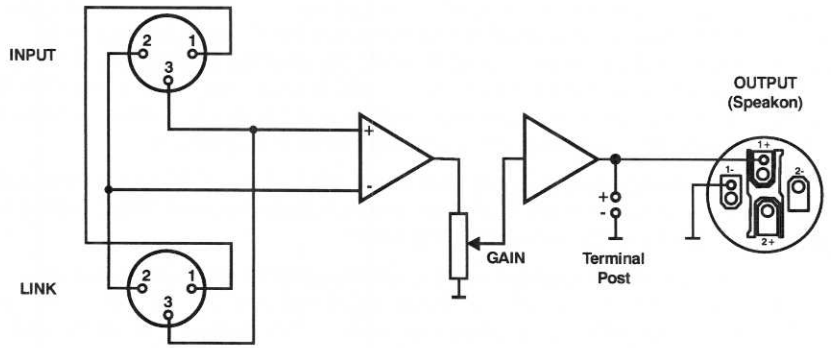
Avoid using thin cable or excessive numbers of connectors in the A.C. supply to the amplifiers, as poor supply regulation will reduce the output power. The voltage rating is marked on the rear of the unit. Internal wiring links on the transformer primary windings can be arranged for operation on 220V or 240V nominal supplies, except for some export models which have tappings for 100V and 117V only.

Mains voltage selection

The primary voltage tappings are located inside the amplifier close to the power transformer. The top cover must be removed in order to change the voltage setting.

Signal input connection

Either balanced (differential two-line) or unbalanced (single -line) input connection may be used. Balanced input is particularly useful where long cable runs are used between the mixer and the power amplifier, as any stray signal picked up in the cable run, such as mains hum or crosstalk from lighting control systems, will be cancelled out.



Unbalanced input connections

An unbalanced input (single core screened cable) may be used by simply connecting 0V (shield) to Pin 1 and signal (core) to Pin 2. In addition connect the unused Pin 3 to Pin 1.

6: Technical Specification

Input signal	0dB = 775mV, 0dBm 20K Ohm unbalanced 40K Ohm balanced
Input connection	XLR-type male and female connector (see serial label for connection information). For single-pole (unbalanced) input, ground the inverting input to signal earth, i.e. link pins 1 & 3 in the input XLR plug.
Output power	8 Ohm Bridge mono 300 Watts 4 Ohm (per channel) 150 Watts 8 Ohm (per channel) 100 Watts Measured with both channels driven, sine wave drive, resistive load, continuous rating with mains at 100%, at visible onset of clipping. (Visible clip onset defined as 0.5% THD).
Voltage gain	30dB at full gain 0dB ref O/P = 24.5V RMS
Output connection	Terminal Posts on 3/4"spacing & Speakon connectors.
Speakon wiring	HOT to 1+, GROUND to 1- (see diagram).
Load impedance	Stereo: 4 Ohms minimum per channel Bridge: 8 Ohms minimum
Bridged mode	Channel A driven in-phase (+Output) Channel B driven out of phase(-Output)
Damping factor	Greater than 300 ref 8 Ohm, 100Hz
Frequency response	<10Hz to > 100kHz@ 1 Watt
Power bandwidth	<10Hz to > 100kHz(-dB ref 1kHz)
Signal to noise ratio	100dB, 22Hz to 22kHz
Slew rate	+45V/uS 10kHz sq wave @ = 10dB
Rise time	<4 uS 0% to 90% with 8 Ohm resistive load
Harmonic distortion	Typically 0.005% @ 1kHz Less than 0.03% 20Hz to 20kHz Measured at 0dB output into 8 Ohms
Intermodulation distortion	Less than 0.03% S.M.P.T.E. 60Hz:7kHz 4:1
Power connection	3-core captive cable Brown core -Live (phase) Blue core -Neutral Green/Yellow core -Earth (Ground)
Warning	**THIS AMPLIFIER MUST BE EARTHED**
Power requirements	European version: 240 Volts or 220 Volts U.S.version:117 Volts or 100 Volts 50/60Hz. Set by internal link wiring and marked on rear cover. 500VA maximum
Panel size	482.6 x 89mm 2U 19"rack standard
Depth	13.0 inches (330 mm), behind mounting surface including rear handles.
Weight	12 kg (25.2 lb)

1: Introduction

Contents

CITRONIC

Established in Melksham Wiltshire, in 1972, the company occupies prestigious purpose built factory headquarters and is one of the leading employers in the area.

The Company's award winning product range covers professional audio mixers, amplifiers, signal processing and loudspeakers. Each unit is manufactured to the highest possible standards, and all have an enviable reputation for reliability and value for money - the noted hallmark of Citronic products.

Substantial investment has been made in high technology CAD systems, manufacturing control and testing techniques. This sophisticated computerization, coupled with an extensive research and development program, enables the company to offer an exceptional degree of manufacturing excellence and quality assurance. The Company's commitment to Quality has been endorsed by our entry on to the LLoyds Quality Register following acreditation to BS5750 Part 1, ISO9001 & EN29001 in May 1993.

Citronic has always listened carefully to the customer, and places tremendous emphasis on market research. This ensures that the exacting requirements of the installer and operator are complemented, without compromise, throughout the entire product range. This unique approach, coupled with a strong input from a highly qualified engineering team, ensures that Citronic maintains its position as a respected leader, in the industry's development.

Citronic has a distribution network throughout Europe, Asia and the Americas.

WARNING

In order to obtain the best service from the unit we **STRONGLY** recommend that you read this manual before you apply any power.

The PPX Series

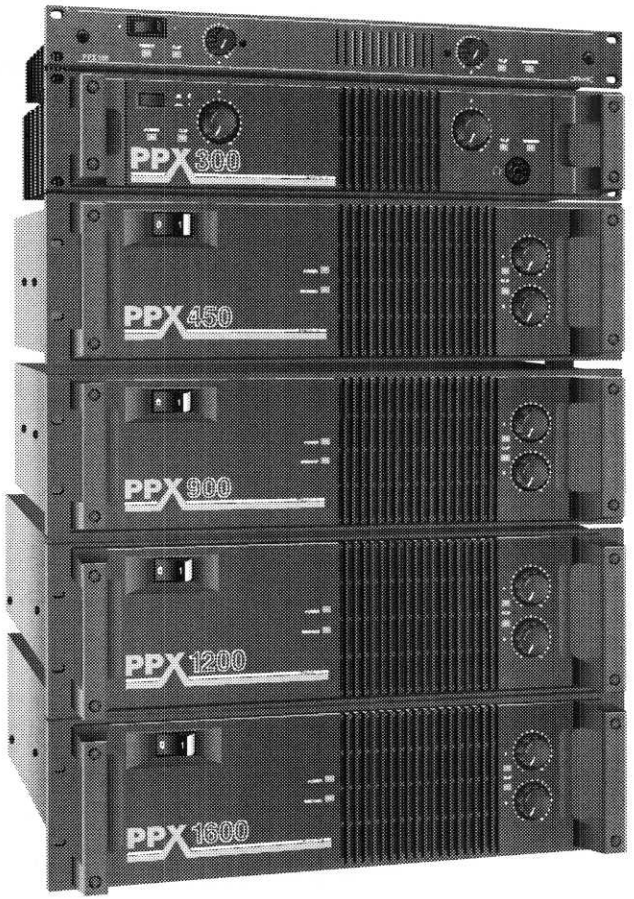
PPX Series amplifiers are designed for professional applications where reliability is of primary importance. The amplifiers are protected against accidental abuse such as short or open circuit load, and each channel has independent thermal shutdown.

DC protection for the load is achieved using TRIAC clamps which eliminate the reliability problems and resistance losses associated with relay protection systems. FET clamping is incorporated to prevent pre-amplifier switch-on thump from reaching the loudspeakers, by providing a gradual rise of gain at switch-on, avoiding transients which can occur in amplifiers with relay muting.

The output FETs are convection cooled using custom extruded aluminium heatsinks on each side of the case. These allow ample thermal mass for all running conditions.

The circuit design uses a balancing input stage which provides some gain, allowing the output stage negative feedback to be optimised reducing harmonic distortion to typically 0.005% at

8: The Range



PPX Range Comparison Table

Rating Per Channel	LF Peak Power 4 Ohms	8	Continuous Power 2 Ohms	4 Ohms	8	Bridge Mode @ 8 Ohms	Size Height	Depth	Weight
PPX150	190	128	-	70	51	>150	1U	330mm	8Kg
PPX300	390	210	-	157	97	>300	2U	330mm	12Kg
PPX450	484	288	307	225	140	>450	3U	337mm	18Kg
PPX900	980	600	613	450	280	>900	3U	337mm	22Kg
PPX1200	1500	830	974	665	400	>1200	3U	447mm	31Kg
PPX1600	1800	980	1180	830	480	>1600	3U	447mm	35Kg

The PPX450 and above are capable of delivering very high power into 2 Ohm loads. It is safe to use these amplifiers in 2 Ohm systems provided you know that the Loudspeaker impedance does not fall below 2 Ohms at the frequencies they are being used. This information can be obtained from most loudspeaker manufacturers.