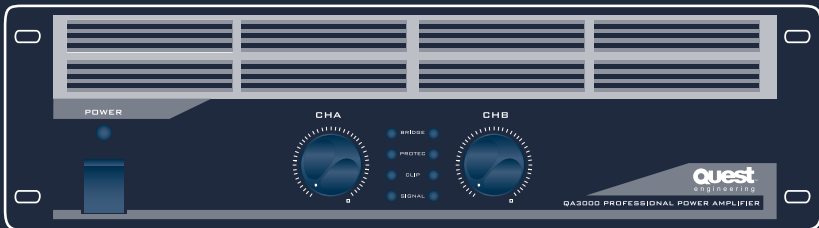


# QA SERIES

1000/2000/3000  
POWER AMPLIFIERS  
User Manual



## Contents

---

<b>Safety</b>	<b>P.01</b>
<b>Connections</b>	<b>P.02</b>
<b>Installation</b>	<b>P.03</b>
<b>Specifications</b>	<b>P.05</b>

---

### Safety Precautions



Flying and installation of all speaker cabinets must be carried out by suitably qualified personnel following the approved safety standards.



Do not attempt to clean any plastic parts with solvents or petrochemical based cleaners.



The power voltages inside this device are high and could cause serious injury or death if touched while the power is connected. Do not open the amplifier case as there are no user serviceable parts inside.



Do not expose amplifier to direct precipitation or stand in water. Liquid getting into the box will risk a short circuit and will be hazardous.



Do not stack speaker cabinets in a manner that could cause injury.



Do not place sources of heat on or around the amplifier such as lighting equipment or smoke machines.



Do not place magnetic sensitive equipment directly on or around amplifiers.



## Installation Precautions

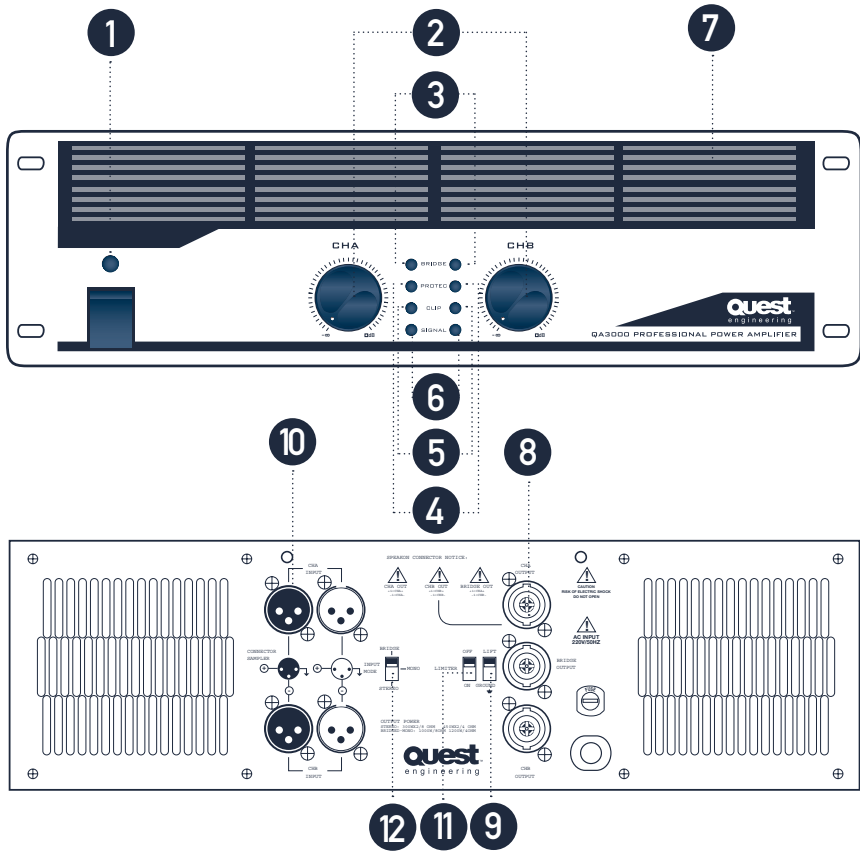
1. Read all the documentation accompanying your amplifier before operating.
2. Check that the amplifier is set to the correct voltage for your country. Operating at incorrect voltages will void warrantee.
3. Make absolutely sure that the power supply is wired correctly. This can be done with a commercially available power supply tester. This especially applies to three phase distribution boards where an incorrectly wired or intermittent neutral line can cause excessive voltages which will permanently damage any 230-110 volt equipment connected to it. It is good practice to test the power for polarity and voltage range. Faulty wiring is more common than you may imagine and is the source of many audio difficulties.
4. Always operate the amplifier with the earth or ground connected. When powered from a generator, make sure there is a viable earth connection.
5. Check that the external power wiring is in good condition. Do not connect to damaged or frayed wiring.
6. Confirm that the amplifier outputs are correctly connected before operating. This particularly applies to multiple speaker arrays where incorrect wiring can lead to an accidental parallel connection to another amplifier's output causing damage to both amplifiers.
7. Do not locate amplifiers close to sources of heat or moisture.
8. Keep air intake area clear. It is good practice to clean filter regularly and occasionally check that the amplifier is not clogged with dust. A hot amplifier rack is a sign of inadequate maintenance or poor installation.
9. Occasionally check that all the cooling fans are functioning. If an amplifier shuts down as a result of excessive heat, distorts or is not sounding as it should, check the speaker wiring, power supply, (too low or too high), fan operation and input gain structure for non standard setup.
10. Check your amplifier rack is clear of loose cable ties, screws and stray wirers that can obstruct fans or allow entry of anything that can cause short circuit.
11. The amplifier should be returned to Quest Audio service centre for service by qualifier personnel if service is required.
12. Output voltages from the QA Series are potentially high. Use only well insulated quality speaker cable of suitable gauge. (See section covering installation and wiring recommendations)

**SAFETY**



CONNECTIONS

2



1. ON/OFF switch with LED indication
2. LEVEL Control of the input level of the external signal in 3dB increments
3. BRIDGE. This LED indicates that “Bridge” mode has been selected on the back panel. Input is across channel A
4. PROTEC. The “Protec” LED indicates that one of the various amplifier safeguards have automatically switched out the speaker load due to the existence of a fault, short circuit or excessive heat.
5. CLIP. Display indicates the presence of distortion as a result of excessive input level or too low out put impedance.
6. SIGNAL. Signal status indicators: These LEDs indicate signal presence for both the inputs of channel A & B.
7. AIR INTAKE. Amplifier cooling system air input and dust filter.
8. OUTPUTS. Channel A /B and Bridge outputs. Speakon NL4 connectors.
9. GROUND ON/FLOATING. Separates electrical earth from that of chassis ground.
10. LIMITER ON/OFF. (On models where fitted)
11. INPUTS. Channel A/B inputs pin 1 ground, pin2+ pin 3-.
12. INPUT MODE. Select bridge mono or stereo input-output.

**⚠ SWITCH OFF AMPLIFIER BEFORE OPERATING BRIDGE SWITCH**

## Installation Procedure

### Mains Power Connection

Before connecting the amplifier to the mains power, make certain that the voltage corresponds with that indicated on the rear of the amplifier. A variation of 10% is acceptable. Refer to safety warnings before switching on.

### Power Up

It is standard procedure to power up the amplifiers last and shut down first. The QA series amplifiers feature turn on delays as the power up diagnostic circuits search for faults, so turn on “thump” is avoided. The speaker outputs are switched into circuit once checks are complete and normal operating voltages are present at all stages of the amplifier.

When powering up multiple amplifiers, a staged turn on is suggested as the power surge of simultaneously switching on multiple amplifiers can exceed the power supply capability causing circuit breakers to disengage.

### Power Requirements

The QA Series amplifier is capable of high output voltages. When multiple amplifiers will be operating simultaneously, make sure the power supply is adequate for all amplifiers to draw full power. In this case three phase power of sufficient Amperage supply capacity will give best results from your amplifiers.

In the case where power is to be supplied from mobile generators, It may help to “load the generator” with some lighting to create a reserve of power from the generator for the amplifiers. Amplifiers do not necessarily draw high continuous power as lighting will, but have a high demand for dynamic power and can draw very high amounts of current for short durations. If the power is not available, distortion and reduced performance will result.

### Rack mount installation

In permanent installation it is recommended to secure the amplifier from both front and rear rack mounting facilities. For mobile application, this practice is absolutely essential. Damage to the amplifier caused by incorrect rack mount installation or transit damage is not covered by the warranty.

### Installation and electrical interference

Avoid installing your amplifier near sources of magnetic fields such as radio transmitters, welding equipment, high current transformers, lighting dimmers or electric motors.

All signal cables should be physically isolated from power cables and all audio and amplifier power should be supply circuit separate from lighting or stage machinery power. Failure to observe this standard may generate unwanted noises and hum to the Audio system.

### Connecting cables

When connecting the audio system, use only balanced three conductor, signal cable of high quality, (screen pin1 plus two signal carriers pin2/3). Low cost cable is more inclined to pick up radio frequencies and pick up noise under certain conditions. For speaker cabinets, always use two core copper high current cables of suitable length. The thicker the copper core, the less the loss on a long speaker line.

It follows, not make speaker cable runs longer than necessary. Long runs of thin cable will greatly reduce the excellent damping factor of the QA series amplifiers causing a loss of "punch" in the bass response. The rule of thumb is to use as thick a copper core as is practical. It is impossible for a cable to have too much copper but too little will cause losses of power and reduced damping factor. Unnecessarily long speaker cable runs will have the same effect, especially when left in a tight coil from a high powered amplifier.

### Bridge mono operation

In Bridge mono mode, the output of channel A input buffer amplifier is connected to both channel A and channel B power amplifiers. The signal is routed in a manner to bring the channels onto opposite polarity to each other. The A channel handles the positive voltage swing and the B channel becomes the negative, thus doubling the output voltage swing. Via the "bridge output" speaker connector, the speaker is now connected across the two channels.

Power is proportional to the square of the voltage swing, so four times the output power is possible. The reality is that this would exceed the capability of the output stage but a considerable increase in output will result all the same.

The minimum recommended load impedance is 8 ohms in bridge mono mode.

Caution: In this mode output voltages are high enough to constitute a shock hazard.

Wiring will need to conform to CLASS 1 wiring standards. Check your local electrical codes for the appropriate electrical standards.

Output is via the middle Speakon connector. The output signal is across pins number 1+,1-.

### SWITCH OFF AMPLIFIER BEFORE OPERATING BRIDGE SWITCH

Quest Engineering QA Series Specifications*			
	QA 3000	QA 2000	QA 1000
<b>Power</b>			
<b>Stereo Mode</b> (both channels driven)			
8 ohms	700 W	550 W	350 W
4 ohms	1060 W	890 W	500 W
2 ohms	1600 W	1300 W	700 W
<b>Bridge Mono Mode</b>			
8 ohms .1% THD 20Hz-20kHz	1600 W	1100 W	750 W
4 ohms .1% THD 20Hz-20kHz	2100 W	1500 W	1100 W
Signal to Noise (20 Hz - 20 kHz)	110 dBm	106 dBm	108 dBm
Noise	680 uV	790 uV	720 uV
<b>Total Harmonic Distortion</b>	Less than 0.03% from 20 Hz-50Hz to increasing linealy to 0.1% at 50KHz		
<b>Input Impedance</b>			
Balanced/Unbalanced	20 k Ω/10 k Ω	20 k Ω/10 k Ω	20 k Ω/10 k Ω
Voltage Gain	30 dB	30 dB	30 dB
Output Circuitry	Class B	Class B	Class B
Current Consumption	14 amps	10 amps	8 amps
Damping Factor	200:1	200:1	200:1
<b>Cooling</b>	Twin Fan Front to Back Air Flow		
<b>Connectors</b>			
Input	XLR	XLR	XLR
Output	Speakon NL4	Speakon NL4	Speakon NL4
<b>Protection</b>	Short Circuit DC/Thermal/Turn on		
Net Weight	27.6kg	27.4kg	23.6kg
Shipping Weight	30.8 kg	30.6 kg	26.8 kg
Shipping Dimensions	550mmx550mmx220mm		

\* Quest Engineering reserves the right to make changes in specifications, or products without prior notice.



[www.questaudio.net](http://www.questaudio.net)