

**Q<sup>1K</sup> Owner's Manual**

## Product Overview

Ultra small in size and big on features, this small footprint high fidelity amplifier is an audio powerhouse. Either as a standalone studio quality stereo amplifier, or as a part of a more complex multi channel system, the Q<sup>1K</sup> is the system designer's ideal solution.

One Q<sup>1K</sup> amplifier consists of two channels of 500W, including the option for a 1000W bridge mode. Audio quality is studio class, which places the Q<sup>1K</sup> comfortably both at home, on the stage, or in the studio. As a reference amplifier the Q<sup>1K</sup> is clean and transparent and its ultra-compact and fashionable appearance is a space saver anywhere it is installed. In bridge mode the amplifier can also operate as a 70V line, 1000W power amplifier. Ideal for distributed systems where high quality and stable high power is required.

## Safety Precautions

- Please read the instructions in this section carefully before use.
- Ensure all instructions in this manual are observed as all information contained within is very important.
- It is also highly recommended that this manual is retained for future reference.

## Safety Symbol & Message Conventions

The safety symbols described are used in this manual to prevent bodily injury and property damage which could result from mishandling. Before operating this product, please read this manual first, in full so you that you are thoroughly aware of any risks.



### **WARNING**

Indicates a potentially hazardous situation which, if mishandled, could result in serious personal injury or death.



## General Caution

- Do not expose the unit to any moisture whether rain, water or other liquids. Exposure to moisture could result in damage to internal components or electrocution/circuit failure.
- Do not cut, kink, otherwise damage or modify speaker cable. Ensure a speaker cable with a core diameter of at least 1.5mm is used for correct performance.
- Do not install or place speaker cables or this device near heaters, high traffic areas or any area where the cables or device can be damaged.
- Avoid installing or mounting speaker boxes, amplifiers, electronics or cabling in unstable locations.
- In the event of storms and/or lightning, ensure all devices are disconnected from mains power in order to prevent damage to any of the units in the system.
- When cleaning the unit, ensure it has been disconnected from any power source and that only a dry cloth is used. Do not use any aerosol or liquid based cleaners.
- Ensure all electronics are electronically grounded (earthed) to a safety ground terminal in order to avoid electric shock. Do not ground any device to a gas pipe as this may result in fire.
- Servicing of all electronics should only be carried out by a certified Quest technician. Please consult your original place of purchase to find the location of your nearest Quest service centre.
- When installing amplifiers and/or other electronics only use the hardware specifically designed for this product.

## Front Panel Controls

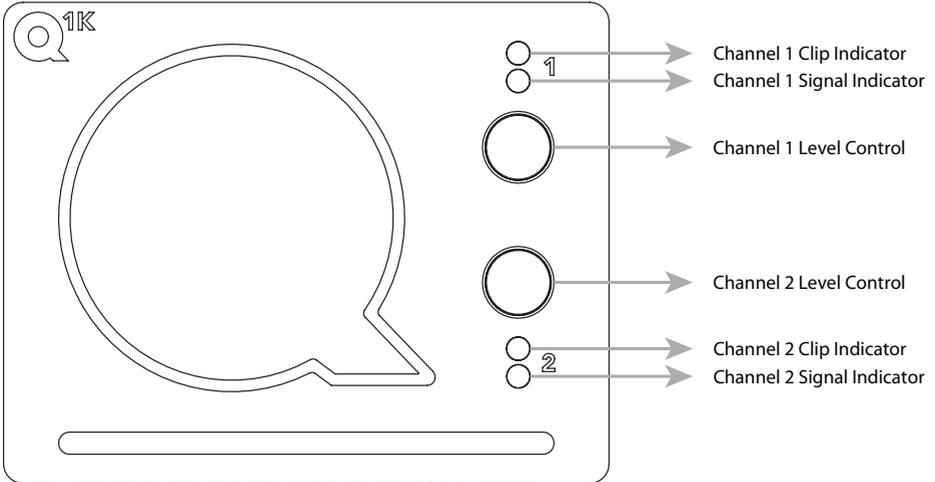


Figure 1.00

## Amplifier Connections

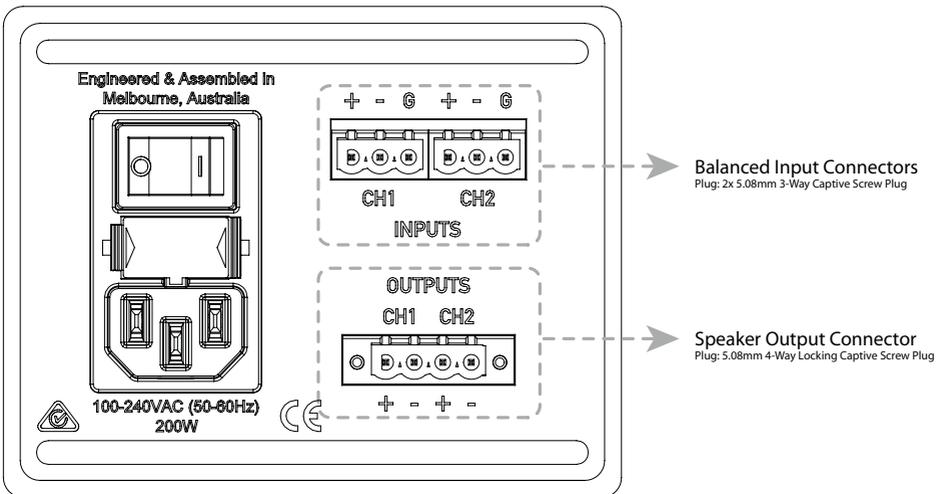


Figure 1.01

## Amplifier Wiring

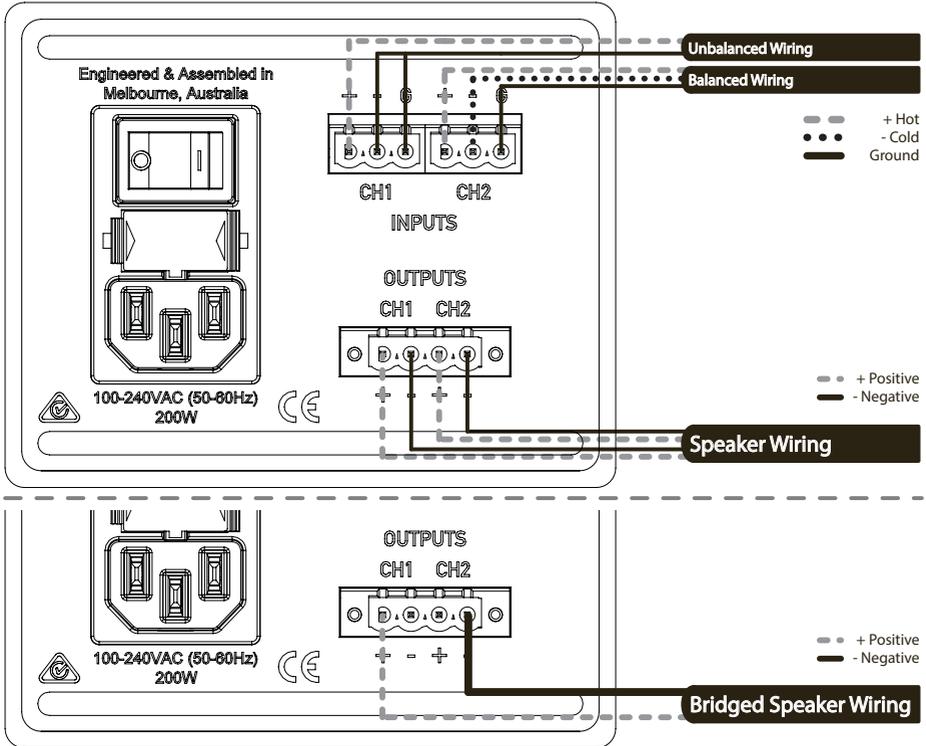


Figure 1.02

## Amplifier Operation

Behind the Q<sup>1K</sup>'s 'Q' device is an impressive selection of switchable functions. Simply remove the badge (with the provided Quest TL02 tool), and an installer can configure a range of filter settings and amplifier modes.

The 'Q' device also provides some security when it comes to setting selection, as it appears to be a fixed item, and also requires the TL\_02 to remove adds piece of mind to your installation.

Available are independent high pass filters either 35Hz or 85Hz, and independent 100Hz low pass filters. All filters are 4th order Butterworth type. The filter selections are ideal for setting crossover points for subwoofers, and mid-top boxes.

Other features include the ability to sum both input channels, bridge the amplifier, and ground lift input signals. Front panel functions can also be selected including: Meters Mode, Auto Standby Enable, Front Panel Lighting Dim, and Front Panel Lock.

The images below depict the tools that come with your Q<sup>1K</sup>; one TL\_01 Screwdriver for DIP switch operation and connector termination, and one TL\_02 for 'Q' device removal.

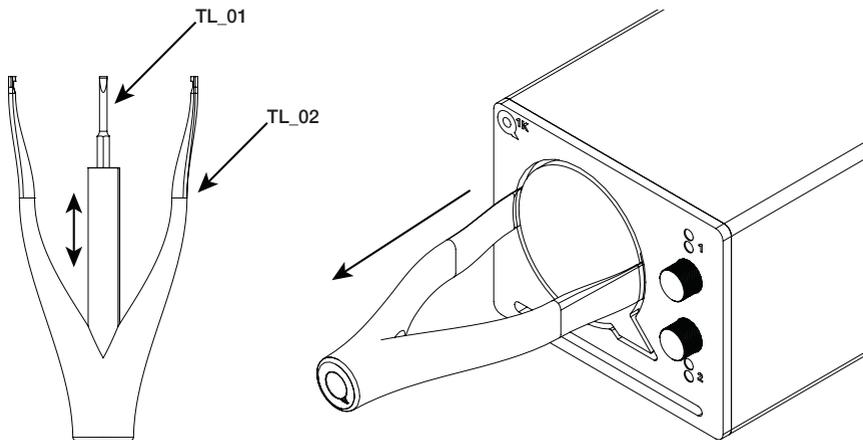
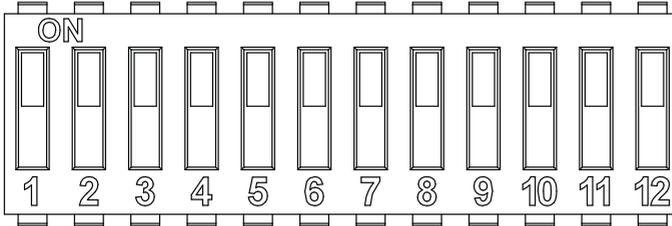


Figure 1.03

## DIP Switch Settings



- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>1 CH1 85Hz High Pass Filter</li> <li>2 CH1 100Hz Low Pass Filter</li> <li>3 CH2 85Hz High Pass Filter</li> <li>4 CH2 100Hz Low Pass Filter</li> <li>5 Low Impedance Bridge Mode (summed inputs - ganged gain controls)</li> <li>6 High Impedance Bridge Mode (summed inputs - ganged gain controls)</li> </ul> | <ul style="list-style-type: none"> <li>7 Summing Mode (summed inputs - individual gain controls)</li> <li>8 Ground Lift</li> <li>9 Meters Mode</li> <li>10 Auto Sleep Enable</li> <li>11 Dimmed Lighting Mode</li> <li>12 Front Panel Lock</li> </ul> |
|---|---|

Figure 1.04

## DIP Switch Functions in Detail

1. 85Hz 4th order Butterworth High Pass Filter for Channel 1 (when off the fixed 35Hz 4th order Butterworth High Pass Filter is enabled).

2. 100Hz 4th order Butterworth Low Pass Filter for Channel 1.

3. 85Hz 4th order Butterworth High Pass Filter for Channel 2 (when off the fixed 35Hz 4th order Butterworth High Pass Filter is enabled).

4. 100Hz 4th order Butterworth Low Pass Filter for Channel 2.

5. Low Impedance Bridge Mode (Figure 1.06) is used when bridging the amplifier for low impedance loads (i.e.  $<8\ \Omega$ , non 70V loads). In this mode the amplifier performs a soft-reboot, mixes both input channels together, then channel gains are 'ganged'. Ganged channel gains means that either rotary encoder will affect both channels, and the ratio between each channel's gain remains the same. For example, if you set Channel 2 to maximum, and Channel 1 to 50% level then enable Low Impedance Bridge Mode – both channel gain settings will remain the same level apart no matter which rotary encoder is operated. Remember to set individual levels prior to enabling this mode.

6. High Impedance Bridged Mode (Figure 1.06) is used for high impedance loads (i.e.  $8\ \Omega$  - 70V loads). In this configuration, the channel gains are 'ganged' as they are in Low Impedance Bridge Mode, and operate in the same way. Both input channels are also mixed together. This mode also allows for 70V operation.

7. Summing Mode (Figure 1.07) mixes both input channels together, and channel gains are individually controllable.

9. Meters Mode alters the operation of the illuminated 'Q' Device, and uses them to display a representation of both channel levels as a Meter.

10. Auto Sleep Enable allows the amplifier to enter sleep mode 30 minutes without an input signal (above the threshold for signal LEDs on the front panel). Wake up time is ~3 seconds. Sleep Mode complies with ErP (1275/2008/EC)  $< 0.5W$  mains consumption.

11. Dimmed Lighting Mode sets the front panel 'Q' device illumination to a lower brightness.

12. Front Panel Lock disables the rotary encoders and is useful when permanently installing the product.

## Amplifier Configurations

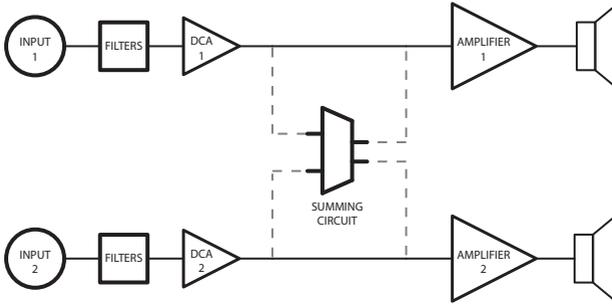


Figure 1.05 (Normal Dual Channel Mode)

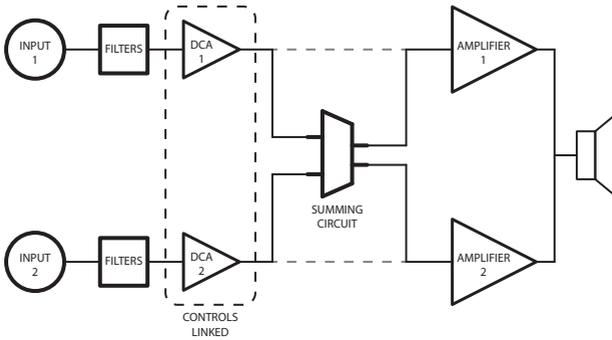


Figure 1.06 (Bridged Mode (both low and high impedance variants))

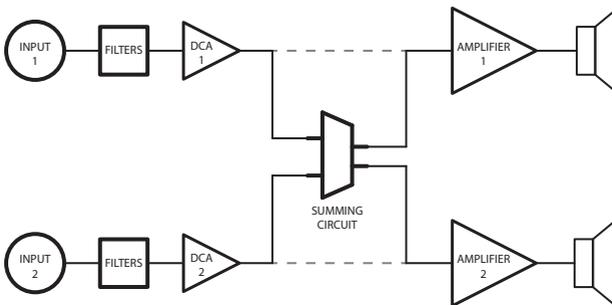


Figure 1.07 (Summed Mode)

## Cooling and Ventilation

Air is drawn in from the front panel and passed out the rear panel. It is essential that while the amplifier is running air is able to circulate around it freely. The efficiency of the cooling system will depend on the immediate environment (e.g. an enclosed rack, direct sunlight).

If the amplifier is installed in a case, an open area at the front and back is required. This area should be in line with the amplifier or large enough at the top of the amplifier location to allow passage of warm air to escape. If this cannot be achieved a forced ventilation system should be used.

Note: Continuous mid to high power draw at low load impedance can cause more heat dissipate from the amplifier.

## Rack Mounting the Q<sup>1K</sup> as a Multi Channel Installation

Each Q<sup>1K</sup> amplifier is a ¼ rack width wide, by 2RU high. Combined with the Universal Rack Kit (uRAK1) it is possible to mount four Q<sup>1K</sup> amplifiers into a single 2RU space. Delivering 8x 500W, or 4x 1000W, or a combination of both high and low impedance. **The racking kit ships with 3 blanking plates which allows easy installation of 1 to 4 amps with the same kit. The amplifiers are mounted to the kit by removing three countersunk screws from their base and reaffixing through the rack base. No additional screws are required.**

Figure 1.08 below shows a uRAK1 set for one Q<sup>1K</sup> amplifier, and has three blanking plates installed.

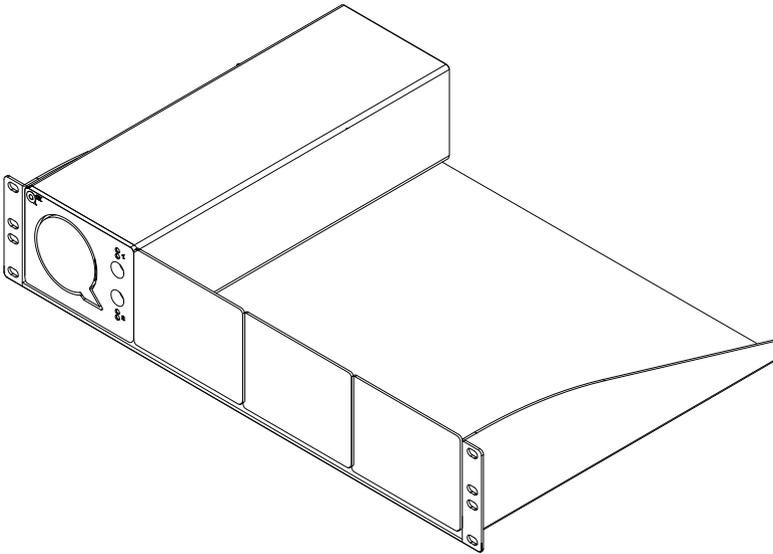


Figure 1.08

<b>Specifications</b>	
Max. Output Voltage	70 Vp SE, 140 Vp BTL
Output Circuitry	Class D
Signal To Noise-Ratio (20Hz - 20kHz, 4Ω load MOL)	> 91 dB (unweighted)
THD+N (1W 1kHz)	< 0,01 %
Dynamic Range	120 dBA
Frequency Response (4Ω, 120W output)	35Hz - 20kHz (fixed 35Hz 4th Order Butterworth High Pass Filter)
Gain	28dB
Protection Circuits	Temperature, Over Current, DC Output, Mains RMS Input, High Frequency, and Internal Rail Over-voltage
Indicators	Signal, Clip, Fault, Gain Settings, Meters Mode, ('Q' Illumination)
ErP (1275/2008/EC) compliant standby consumption < 0.5W	< 0.5W
Mains Input Voltage	85VAC - 265VAC
Net Weight	3.1kg
Shipping Weight	4.3kg
Dimensions (HxWxD)	87 x 110 x 330mm
Shipping Dim. (HxWxD)	136 x 254 x 395mm

<b>Stereo</b>	
All channels driven @ 1kHz, THD < 1%, 230VAC	
8Ω	245 W
4Ω	490 W

<b>Mono Bridge</b>	
Single channel driven @ 1kHz, THD < 1%, 230VAC	
8Ω	900 W
4Ω	1050 W
70V	1050 W

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

\*\* The figures shown above are 'real world', usable specifications and are conservative as a result. Quest Engineering does not believe in portraying misleading or exaggerated specifications.



## **Register Your Product**

Thank you for choosing Quest. Please take the time to complete your product registration.

Registering your Quest Engineering product will:

- CONFIRM YOUR WARRANTY
- REGISTER YOUR PRODUCT
- PROTECT YOUR NEW PRODUCT

**REGISTER ONLINE:**

[www.questengineering.com.au/registration](http://www.questengineering.com.au/registration)

**For spare parts and service, contact your local authorised Quest Dealer.**

**quest**<sup>™</sup>  
engineering

[www.questengineering.com.au](http://www.questengineering.com.au)