

SECTION  
1 9 3 6

QUAD



## 77 System Overview

The challenge for Quad, with its unparalleled reputation for product longevity, is to design products of the highest performance which can take advantage of the latest advances in technology and yet protect the customer's investment and do not become obsolete. In effect to design an organic system which will grow and adapt to whatever future technologies might arise. The Quad 77 system is the result.

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## 77 System Console

The 77 System Console is a two-way infrared remote control panel which transmits and receives information to and from the 77 units by means of 10 push buttons and a knob. It uses a system of menus determined by the **Quad 77** products which make up the system.

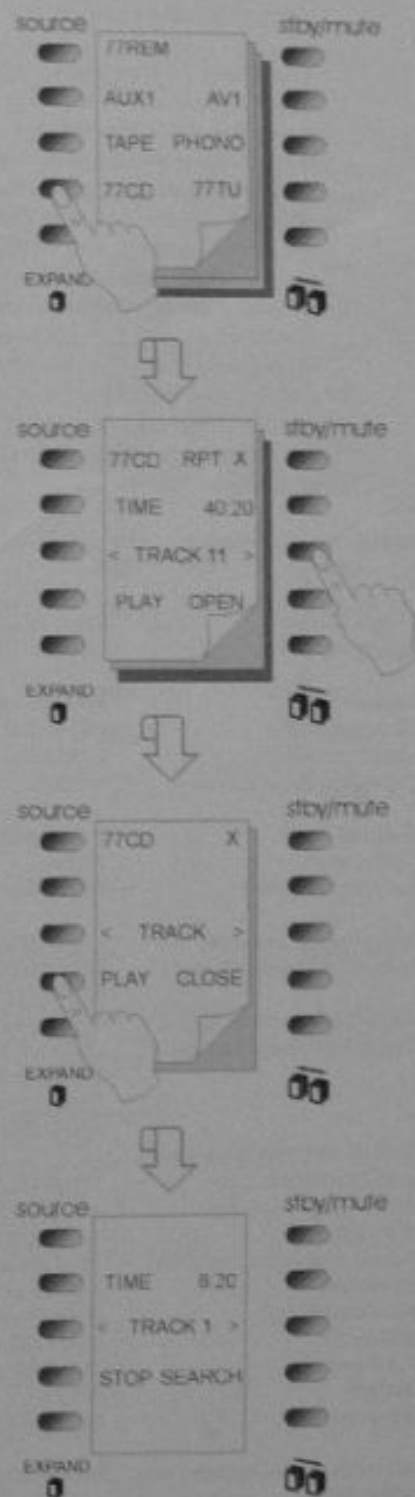
The **Quad 77** System Console is the operational heart of your **Quad 77** system. It is the size of a small paper back and puts complete control in the palm of your hand or on the coffee table. With only ten push buttons and a rotary knob and clear commands in English on the display it is simple and logical to use. It uses two way infrared communications designed and developed by **Quad** which allows you to control any **Quad 77** system however complex and to receive continuous reports of the system status. The display shows a series of menus which determines the functions of the push buttons, a concept which is immediately familiar to everybody who uses a PC or cash dispenser.

The **Quad 77** console is powered by rechargeable batteries. It will run for about eight weeks between charges, but can be dropped into its charging cradle at any time. The battery management system optimises battery life and current consumption.



The functions offered by the System

Console grow with your system and can control new **Quad 77** products, even those which we have not yet thought of.

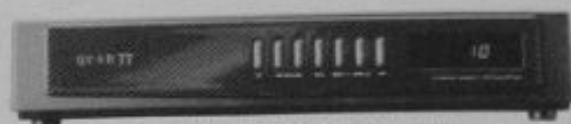


## 77 Integrated Amplifier

The **Quad 77** Integrated Amplifier combines five star performance with **Quad** buslink system connection and the **Quad** two way infra red remote control system to provide the foundation for a state of the art system which can grow and grow. **Quad** buslink lets you connect up to 32 **Quad 77** components into the Integrated Amplifier. It carries signal from product to product in differential mode, giving you the performance benefits of balanced input and output. It also carries control data from product to product so that the **Quad 77** System Console can control the entire system however complex it may become.

The **Quad 77** Integrated Amplifier uses **Quad** virtual earth switching, digitally controlled analogue volume control and dual complementary feed back to give outstanding performance. 80 watts per channel into 8 ohms puts the **Quad 77** at the top of its class and is outstanding for such a small package. Pick up the **Quad 77** and you will see the solidity of its construction and the attention to engineering detail. Better still, have a look inside. Note the absence of mechanical switches and potentiometers and fuses in the signal path which all generate distortion.

The **Quad 77** Integrated amplifier is fully protected against accidental or deliberate abuse. Turn it flat out and leave it playing and it will automatically shut down if it gets too hot. Short out the speaker leads and the amplifier simply turns itself off until the short circuit is corrected. The amplifier protection is controlled by a microprocessor which constantly monitors the state of the amplifier and acts when necessary. There is nothing in the signal path to detract from performance.



Available in Carbon or Nextel

### 77 Integrated Amplifier

#### Signal Bus Inputs

Up to 32 **Quad 77** series products  
Source 1, Source 2 and Tape

#### Inputs

Input Sensitivity  
Load Impedance  
Signal/Noise

#### Source 1 & 2

100 or 300 or 775mV  
33 kOhms  
>100dB

#### Tape

100 or 300 or 775mV  
33kOhms  
>100dB

#### Outputs

Output level  
Source impedance

#### Preamp Out

775mV  
850Ohms

#### Tape Out

same as input level  
300Ohms

#### Interchannel balance

+/-0.1 dB with volume control varied from maximum to -70dB

#### Maximum Power Output

84W into 8Ohm <0.05% dtot  
115W into 4Ohms <0.05% dtot

#### Maximum Current Output

11A peak per channel

#### Distortion (total harmonic)

Continuous sine wave into 8Ohm resistive load  
20Hz any level up to 70W <0.005% (22kHz bandwidth)  
1kHz any level up to 70W <0.005% (22kHz bandwidth)  
20kHz any level up to 70W <0.01% (80kHz bandwidth)

#### Output internal impedance and DC offset

1.5µH in parallel with 0.05Ohm, DC offset <20mV

#### Frequency response

-0.3 dB at 20Hz and 20kHz

#### (ref 1kHz)

-3 dB at 3Hz and 50kHz

#### Power response (ref 1kHz)

-0.75 dB at 10Hz and 20kHz

#### Crosstalk

<-90 dB at 1kHz

#### Hum and Noise

-105 dB ref. 75W (22kHz measurement bandwidth unweighted)

#### Stability

Unconditionally stable with any load and any signal

#### AC input

110-120V or 220-240V, 30-350 VA, depending on signal level

#### Weight

6.3 kg

#### Dimensions

321mm wide; 65mm high; 300mm deep

All voltages quoted are rms. Measurements apply to either channel and were made at 230V AC.



"Quad'S 21ST  
CENTURY  
SYSTEM!"

What Hi-Fi, Feb 1995

"IT'S A Quad  
WORLD!"

Hi-Fi World, Feb 1995

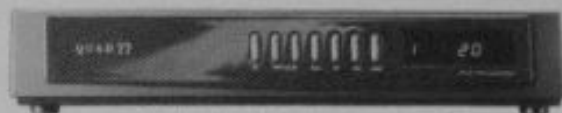
"Quad 77

.....WHAT MORE  
COULD YOU  
ASK?"

Hi-Fi News, Nov 1995

## 77 Preamplifier

The **Quad 77 Preamplifier** is designed to form the heart of your home entertainment system.



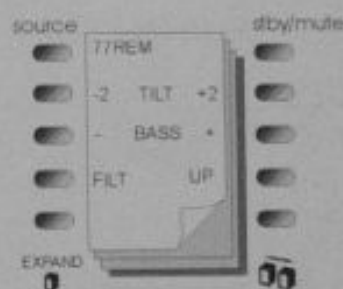
Available in Carbon or Nextel.

State of the art performance combined with the most advanced remote control system and unique operational flexibility means that the preamplifier is ideally suited to both simple and complex systems. The **Quad 77** preamplifier comes complete with the **Quad 77** system console to form the most advanced remote control preamplifier system on the market. The combination of standard and **Quad** link inputs means that the preamplifier can accept an almost unlimited number of programme sources and correctly match them. There are three line inputs plus an input for pickup cartridges and a tape input and output. All inputs have adjustable sensitivity so that they can accept input signals from just about any conceivable programme source. The pickup input has three settings for both moving coil and moving magnet pickups. Input sensitivity settings are made using the System Console. **Quadlink** allows a maximum of thirty two **Quad 77** series products to be connected up, enough for even the most sophisticated home entertainment system.

The Preamplifier uses the same solid state switching in virtual earth configuration combined with the digitally addressed analogue volume control as used in the **Quad 77** Integrated Amplifier. This solid state topology has large performance benefits over more conventional switching using mechanical components. The **Quad 77** uses the most advanced circuit techniques from input to output to give state of the art performance.

The **Quad 77** Preamplifier can be used with any **Quad** amplifier. There is a conventional phono output for connection to **Quad 606**, **306**, **405** and **Quad AMPBUS** for connection to the **Quad 77** stereo amplifier, **Quad 707** or **Quad 77** monoblocks. AMPBUS carries 6 channels of audio which makes connecting up bi or tri-amped or multi-channel systems straight forward. The possibilities pages at the end of this brochure show some of the high performance systems which can be built using **Quad 77** components.

The Preamplifier has a complete set of **Quad** tone controls, which are an essential tool for the serious collector of recordings, many of which benefit from the judicious use of Tilt, Filter and Bass controls. The tone controls have a separate menu in the System Console with a true bypass position which takes all controls out of the circuit.



## 77 Preamplifier

INPUTS	Input Impedance	Input Sensitivity	Max. Input	Signal/Noise	Distortion
AUX1,2&3	33K Ohms	100, 300 or 775mV	9V	>97dBa(A) (ref. 775mV)	<0.003%
Tape	33K Ohms	100, 300 or 775mV	9V	>97dBa(A) (ref. 775mV)	<0.003%
Phono MC	100Ohms//22nf	100, 300 or 775uV	9mV	>78dBa(A) (ref. 775uV)	<0.01%
MM	47K Ohms//220pf	1, 3 or 7.75mV	90mV	>78dBa(A) (ref. 7.75mV)	<0.005%
OUTPUTS	Output level	Max. output level	Source impedance		
Preamp-out	775mV	3.3V	100 Ohms		
77AMPBUS	2V	8V	20 Ohms		
Tape-out <sup>1</sup>	100mV/300mV/775mV	10V	330 Ohms		

Note 1: Dependant on sensitivity setting.

### FREQUENCY RESPONSE

AUX1,2,3/TAPE/QuadLINK	10Hz - 20kHz +0dB/-0.3dB
	3Hz - 56kHz +0dB/-3dB
Phono (MM/MC)	20Hz - 20kHz +/-0.5dB
	7Hz - 53kHz +0.5dB/-3dB
Interchannel Balance	+/-0.1dB with volume control varied from maximum to -70dB
Weight	4.3 kg
Dimensions	321mm wide; 65mm high; 300mm deep

## 77 Power amplifier

The **Quad 77** power amplifier delivers 80 watts into 8 ohms. It uses a dual complementary feed back circuit with exceptional stability margins to achieve exemplary performance. Overload recovery is instantaneous and the amplifier is fully protected against overdriving or misuse. The amplifier is designed to be driven just as hard as you want to drive it and it is virtually impossible to damage the amplifier. Although it is good practice to switch equipment off before connecting it up or disconnecting it, you will not damage the 77 power amplifier if you forget to do so and if you accidentally short out the output you may raise sparks but you will not harm the amplifier. A microprocessor continuously monitors the amplifier state and takes appropriate action. There are no fuses or relays in the signal path to degrade performance.

A second **Quad 77** amplifier connected via the AMPBUS makes a simple and very worth while performance upgrade.



Available in Carbon or Nextel

### 77 Stereo Power Amplifier

<b>Maximum Power Output</b>	84W into 8 Ohms (THD<0.05%) 115W into 4 Ohms (THD<0.05%)
<b>Maximum Current Output</b>	11A peak per channel
<b>Distortion (total harmonic)</b>	20Hz any level up to 70W <0.05% (22 kHz bandwidth) 1 kHz any level up to 70W <0.05% (22 kHz bandwidth) 20 kHz any level up to 70W <0.05% (80 kHz bandwidth) Continuous sine wave into 8 Ohms resistive load
<b>INPUT SENSITIVITY</b>	
Phono input	775mV
77AMPBUS	2V
<b>Output Impedance and DC offset</b>	1.5 $\mu$ H in parallel with 0.05 Ohms, DC offset <20mV
<b>Frequency response</b>	10 Hz - 20 kHz +0dB/-0.3dB 3 Hz - 50 kHz +0dB/-3dB 10Hz - 20kHz +0dB/-0.75dB
<b>Power Response</b>	
<b>Crosstalk</b>	< 90dB at 1kHz
<b>Hum and noise</b>	-105dB ref. 75W (10Hz - 22kHz measurement bandwidth)
<b>Stability</b>	Unconditionally stable with any load and any signal
<b>AC Mains input</b>	110-120V or 220-240V
<b>Power Consumption</b>	30-350 VA, depending on signal level
<b>Weight</b>	6.3kg
<b>Dimensions</b>	321mm wide; 65mm high; 300mm deep

All voltages quoted are rms. Measurements apply to either channel and were made at 240V AC.

## 707 Power Amplifier

The **Quad 707** power amplifier uses patented current dumping technology and is a revised version of the classic **Quad 606** power amplifier.

It can deliver 120W per channel into an 8Ohm load and 250W per channel into a 4Ohm load. The 707 uses a current dumping output circuit, a **Quad** invention which eliminates many of the problems associated with transistor amplifiers and is covered by patents in several countries. In a current dumping amplifier there is in effect both a low power very high quality amplifier and a high power heavy duty amplifier. The low power amplifier controls the loudspeakers at all times calling on the high power amplifier to provide most of the muscle. The low power amplifier is so arranged - it carries an error signal - that provided the larger power transistors (the current dumpers) get within the target area of the required output current it will fill in the remainder accurately and completely. The reproduced quality is **solely** dependent on the small amplifier which because of its low power can be made very good indeed.

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.



Available to match Carbon or Nextel

Bi-amplification and tri-amplification is easy with 77 series amplifiers. Simply connect another 77 or 707 power amplifier to the system with 77AMPBUS.

### 707 Power Amplifier

Max Power Output	120W into 8 Ohms (THD<0.05%) 240W into 4 Ohms (THD<0.05%)
Power Output Distortion	Continuous sine wave into 8 Ohms resistive load 20Hz any level up to 120W <0.01% Dtot 1kHz any level up to 120W <0.01% Dtot 20kHz any level up to 120W <0.03% Dtot
Output internal impedance and offset	1.5µH in series with 0.05 Ohms Offset typically 7mV
Frequency Response	Ref. 1kHz -0.25dB at 20Hz and 30kHz -1.0dB at 13Hz and 40kHz
Power Response	Ref. 1kHz -0.25dB at 20Hz and 20kHz
Signal Input Level	0.5 volts for 120W into 8 Ohms
Signal input overload	Instantaneous recovery up to +15dB overload
Cross-talk	Input loaded by 1 kOhm -100dB at 100Hz -86dB at 1kHz 65dB at 10kHz
Hum and Noise	(15.7kHz measurement bandwidth) Unweighted -105dB ref. 140W
Stability	Unconditionally stable with any load and any signal
AC input	110-120V or 220-240V, 35-750W, depending on signal level
Weight	12.0kg
Dimensions	321mm wide; 140mm high; 235mm deep.

## 77 Monoblock

The **Quad 77** monoblock is a single channel amplifier housed in the **Quad 77** diecast aluminium case with a power output of 150 watts into eight ohms and 240 watts into 4 ohms. It is the top of the range amplifier in the **Quad 77** series and offers the highest possible performance potential.

The monoblock is fully protected against overdriving or misuse, and can be safely driven as hard as wanted.

Four monoblocks makes the ultimate bi-amplified system and six will make an outstanding A/V system.



Available in Carbon or Nextel

### 77 Monoblock

<b>Maximum power output</b>	150W into 8 Ohms (THD<0.1%) 230W into 4 Ohms (THD<0.1%)
<b>Maximum current output</b>	20A peak
<b>Distortion (total harmonic)</b>	Continuous sine wave into 8 Ohms resistive load 20Hz any level up to 150W <0.005% (22 kHz bandwidth) 1 kHz any level up to 150W <0.05% (22 kHz bandwidth) 20 kHz any level up to 150W <0.05% (80 kHz bandwidth)
<b>Input sensitivity</b>	
Phono input	775mV
77AMPBUS	2V
<b>Output impedance &amp; DC offset</b>	1.5 $\mu$ H in parallel with 0.05 Ohms, DC offset 20mV
<b>Frequency response</b>	10 Hz - 20 kHz +0dB/-0.3dB 3 Hz - 50 kHz +0dB/-3dB
<b>Power response</b>	10Hz - 20kHz +0dB/-0.75dB
<b>Hum and noise</b>	<-105dB ref. 150W (10Hz - 22kHz measurement bandwidth)
<b>Stability</b>	Unconditionally stable with any load and any signal
<b>AC mains input</b>	110 - 120V or 220 - 240V
<b>Power consumption</b>	30-350 VA, depending on signal level
<b>Weight</b>	6.3kg
<b>Dimensions</b>	321mm wide; 65mm high; 300mm deep

All voltages quoted are rms. Measurements apply to either channel and were made at 240V AC.

## 77 Compact Disc player

The **Quad 77** compact Disc player uses the Philips CDM 12.4 transport and Delta Sigma modulation decoder to provide a player which has a measured performance very close to the theoretical optimum and with very high tolerance of damaged or faulty discs. The CDM 12.4 transport is extremely well engineered and produces a very low error output even with badly marked or out of specification discs. It is very quiet in operation.

Delta Sigma modulation is a variation on Bit-stream technology. The chief advantage of the Delta Sigma chip is that the accuracy of conversion is not dependant upon the accuracy of the master clock and is thus not susceptible to clock jitter, which makes the task of the design engineer somewhat easier. However with digital technology it is not the terminology which matters as much as quality engineering.

The **Quad 77** Compact Disc player is available in bus powered and mains powered form. The bus powered unit can only be used as part of a **Quad 77** system and is supplied with a **Quadlink**. The AC Mains Powered version is supplied with a mains lead, a Standard Remote Control and has a mains circuitry, mains connections, euro-connections, phono inputs and a Bus connection. To use the mains powered unit with other makes of amplifiers, simply connect via the phono sockets on the back of the unit.

"...AN EXCEPTIONALLY GOOD SYSTEM"

"THE 77 SOUNDS SUPERB!"

The Times, September 1995

"THE 77 IS BOTH STRAIGHTFORWARD AND A PLEASURE TO USE"

"...A FINE SOUNDING, POWERFUL, REMARKABLY COMPACT,

TECHNOLOGICALLY ADVANCED AND SUBSTANTIALLY FUTURE-PROOF

SYSTEM"

Gramophone, November 1995

"Quad 77 .... WHAT MORE COULD YOU ASK?"

Hi Fi News, November 1995



Available in Carbon or Nextel

### 77 Compact Disc Player

Number of Channels	Two
Frequency Response	<math>\pm 0.1\text{dB}</math> 20-20kHz
Phase Linearity	<math>\pm 0.5</math> 20-20kHz
Signal/Noise Ratio	>100dB 20-20kHz
Cross-Talk	>100dB at 1kHz
Total Harmonic Distortion	<math>0.002\%</math> at 1kHz
Wow and Flutter	below measurement level
D/A Conversion	18 bit 64 x oversampling Delta Sigma converter
Audio Output	2V rms max. 300mV on normal programme material Minimum load impedance 10kohms
Mains Voltage	110-120V or 200-240V 50-60Hz: see rating plate of player back
Power Consumption	14W approximately
Dimensions	321mm wide; 65mm high; 300mm deep approximately drawer opens by 145mm approximately
Weight	3.5kg approximately

## 77 Tuner

FM radio still has the potential to provide the highest quality programme quality, although these days compression and other signal processing is used rather too often.

The **Quad 77FM** tuner with RDS is designed to make the most of the potential quality of FM broadcasts and follows the pedigree of earlier **Quad** FM tuners which have always been regarded as the best tuners available. The 77 tuner uses a **Quad** designed front end for optimum performance. It is powered from the **QuadLINK**. It has two aerial inputs, one for a standard FM antenna and the other for connection to cable or satellite. All the basic tuner functions can be operated from the front panel push buttons while the advanced functions are controlled by the System Console. The tuner has 25 presets. The presets can be loaded manually from either the front panel or the System Console and store frequency, stereo or mono and aerial input.

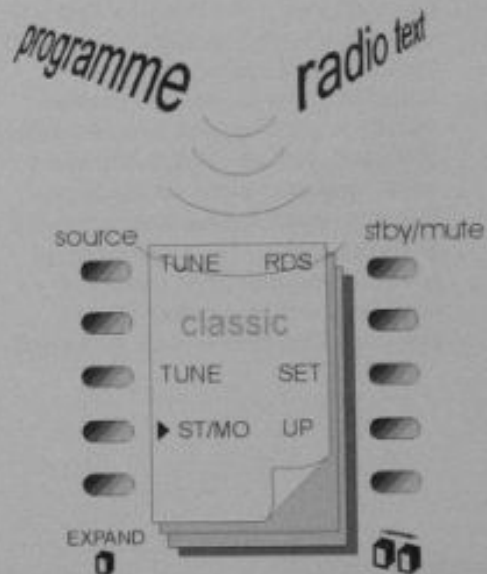


Available in Carbon or Nextel

The presets can also be loaded automatically in which case the tuner scans the frequency band and loads the twenty five strongest signals in decreasing order of signal strength. Each preset name can be edited to show which station is stored in it. When a station is broadcasting RDS, the data is transmitted to the System Console which displays Radio Text, station name and programme type.

### 77FM Tuner

<b>Tuning Range</b>	88-108 MHz
<b>Channel spacing</b>	50kHz
<b>Sensitivity</b>	
(30dB quieting)	Mono 1uV (1.2dBf)
(50dB quieting)	Mono 2.7uV (8dBf)
	Stereo 25uV (28dBf)
<b>Full limiting</b>	<1uV (<1.2dBf)
<b>Signal/noise</b>	
(input signal 1kHz at 1mV, 'A' weighted)	Mono 76dB
	Stereo 70dB
<b>Distortion</b>	
(at 1kHz +/- 75kHz deviation)	Mono 0.15%
	Stereo 0.15%
(at 1kHz +/- 25kHz deviation)	Mono 0.05%
	Stereo 0.1%
<b>Capture ratio</b>	1.5dB
<b>IF rejection</b>	100dB
<b>AM suppression</b>	60dB
<b>Image rejection</b>	80dB
<b>Pilot tone suppression</b>	60dB
<b>Cross-talk</b>	-40dB (nominal at 1kHz)
<b>Frequency response</b>	+0 -1dB, 20Hz -15kHz
<b>Output level (at 30% modulation)</b>	0.775V
<b>De-amphasis</b>	50uS or 75uS
<b>Aerial input</b>	75 ohms unbalanced
<b>Dimensions</b>	321mm wide; 80mm high; 255mm deep (plus connectors) approx
<b>Weight</b>	2.8kg



## 77 - 10L Loudspeaker

**Quad** has produced the 10L, a loudspeaker in response to the perennial dilemma for most **Quad** customers that ESL-63's are either too large or too expensive or both.

We have used the **Quad** ESL-63 as a reference and designed a loudspeaker which comes as close as possible within the constraints and limitations of box loudspeaker technology. No box loudspeaker can hope to sound exactly like an ESL-63, but these loudspeakers have very similar overall presentation and they are free from the colorations which characterise the bulk of box loudspeakers.

The fascination and frustration of successful moving coil loudspeaker design is that it depends as much upon art as upon science.

This begs the question "What is a good loudspeaker?" The most popular loudspeakers are not the highest fidelity. The ear, like the palate, benefits from education and the majority of listeners prefer prawn cocktail loudspeakers in which the blandness of the basic ingredients is masked by a brightly coloured and astringent sauce. Our view on what is a good loudspeaker is unequivocally one with low coloration and distortion and we think that the **Quad** ESL-63 is still the ultimate reference.

Good box loudspeakers are expensive to manufacture. Bigger magnets, extensive crossovers and less resonant cabinets consume materials. Drive units and crossovers need to be matched. The 10L loudspeaker is pair matched to within 1dB over a broad band which is essential for good stereo.

The only way to judge a loudspeaker is to listen to it, preferably in a familiar environment. Specifications will not tell you how a loudspeaker will sound although you can be pretty sure that a loudspeaker which has an on axis frequency response with great peaks and dips will sound awful.

The 10L's are currently available in Yew wood veneer.

"PRESENCE WAS EXCELLENT,  
ALMOST PRODUCING A FORWARD  
PROJECTION OF INDIVIDUAL  
VOICES AND INSTRUMENTS."

"THE **QUAD** 77-10L LOUDSPEAKER  
FULLY DESERVES TO WEAR THE  
NEW STYLE **QUAD** LOGO."

Gramophone, March 1996



### 77 - 10L Loudspeakers

Frequency Range	50Hz-20kHz
Frequency Response	70Hz-18kHz +/-3dB
LF Cut-Off	-6dB at 55Hz
Power Rating	70 watts
Sensitivity	84dB for 2.83 volts input at 1 metre
Input Connections	4mm binding posts
Nominal Impedance	8W
Size	325mm x 190mm x 240mm
Weight	7 kgs approximately

## Quad ESL 63 loudspeaker

The Quad ESL 63 is affectionately known as "FRED" which is the acronym of Full Range Electrostatic Doublet. Just over forty years ago, Quad launched the world's first full range electrostatic loudspeaker, which set the standard for the world's loudspeaker designers for the next quarter of a century. FRED now carries on the role of reference and is found wherever quality of music reproduction is the main requirement. Many of the leading record companies use FREDs as recording monitors and to check the quality of edited tapes.

Electrostatic loudspeakers have inherent performance advantages over conventional loudspeakers. An electrostatic loudspeaker consists of a very thin plastic membrane suspended between a pair of conducting perforated plates. The membrane carries an electrostatic charge and is forced to move by the electrostatic field produced between the plates when the signal voltage is placed across them. The membrane is very light (in the ESL 63 its thickness is one tenth of a human hair) and hence has negligible stored energy. Since the electrostatic charge is spread uniformly over the surface of the membrane it can be made as large as required and a cabinet is not necessary.

Thus the two major causes of colouration in moving coil loudspeakers, which we have come to regard as the sound of hi-fi, are avoided in electrostatic loudspeakers. The performance of an electrostatic loudspeaker is a revelation to anybody accustomed to listening to music through conventional moving coil loudspeakers.

The **Quad** ESL 63 takes the performance advantages of electrostatic loudspeakers a stage further. The ideal loudspeaker for stereo reproduction is a single point source reproducing all frequencies and loudspeaker engineers have been trying to find a practical solution for more than a half a century. If it is not possible to produce a point source loudspeaker, can we instead make a loudspeaker which to an observer behaves like a point source?



Imagine a theoretically ideal point source loudspeaker radiating sound pressure waves and then imagine a plane in the air a short distance from the source and at right angles to the direction of propagation. If the air at the plane is made visible in some magical way, we will see concentric waves radiating out from the centre just as they do when a stone is thrown into a still pool. If we substitute an electrostatic loudspeaker membrane for the plane in the air, make it move in exactly the same way as the air on our imaginary plane and suppress the imaginary source, the results to an observer positioned on the far side will

be identical to those from the ideal source.

The **Quad** ESL 63 does exactly this. An ingenious arrangement of concentric electrodes fed by a sequential delay line produces a sound pressure pattern which is an exact replica of that from an ideal source placed 30cms behind the plane of the diaphragm. The ESL 63 is a totally homogenous sound source, phase true and aperiodic, with a frequency response, both on and off axis, quite free from the irregularities which are inevitable with any multi-way loudspeaker system. The **Quad** ESL 63 has a very well controlled directivity characteristic with the result that there is no stereo hot spot.

A pair of 63s will produce an excellent stereo image over a range of listening positions which is as wide as the speakers are apart. Since the loudspeakers can be placed right up to the side walls the stereo stage can be very wide and the listening position very free. With the very best stereo recordings the results are holographic and moving from one side to the other presents the orchestra from different points of view.

The net result is a loudspeaker of unsurpassed accuracy, which with the right programme material will produce a more realistic and satisfactory illusion of a live musical performance than has been possible hitherto. Compact disc provides music at home which is virtually identical to that on the studio master tape. A number of the leading record companies use the **Quad** ESL 63 as a reference monitor so that listening to compact disc at home using **Quad** ESL 63s is akin to listening over the recording engineer's shoulder.

## ESL 63

### Impedance Sensitivity

8ohm nominal  
1.5 bars per volt referred to 1m (i.e. 86dB/2.83V rms)

### Maximum input

Continuous input voltage 10Vrms  
Programme peak for undistorted output 40V  
Permitted peak input 55V

### Maximum output Directivity index

2N/m at 2m on Axis  
125Hz 5dB, 500Hz, 6.4dB, 2kHz 7.2dB, 8Hz  
10.6dB

### Axis band limits

(Low level) -6dB at 35Hz 3rd order -  
6dB > 20kHz 10.6dB

### AC input

### Weight

110-220V or 220-240, 50-60Hz, 5W  
18.7kg

### Dimensions

660mm wide, 925mm high, 270mm deep  
including 150mm base

## Sub-woofers

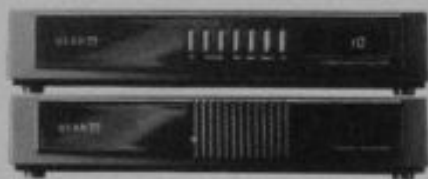
If the ESL-63 is so good why is a sub-woofer a good idea? Some customers want to play louder and some, particularly organ enthusiasts, want to reproduce lower frequencies. It is not difficult to design an electrostatic loudspeaker to do this but it would be rather big and very expensive, so a sub-woofer is a practical compromise. The two sub-woofers for the original ESL and the ESL-63 are designed and manufactured by Gradient in Finland. They are both dipoles to match the directivity characteristic of the electrostatic loudspeaker and ensure

that the cross-over from ESL to sub-woofer is inaudible. Only selected dealers stock and demonstrate the sub-woofers. We will be pleased to send you further information and a list of dealers. The sub-woofers fit neatly under the electrostatic loudspeakers and double as stands. They come complete with a cross-over, but do need a second amplifier.

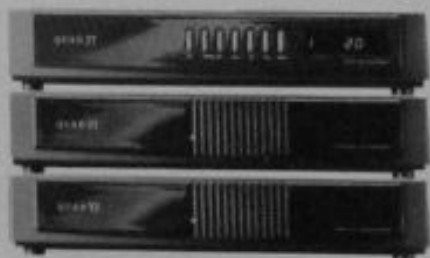
# Possibilities



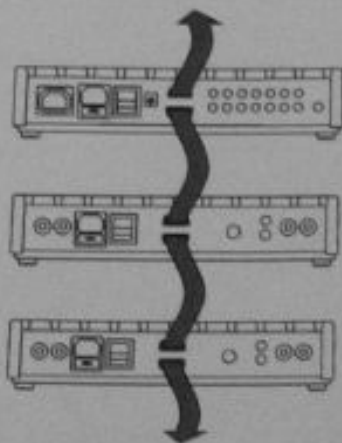
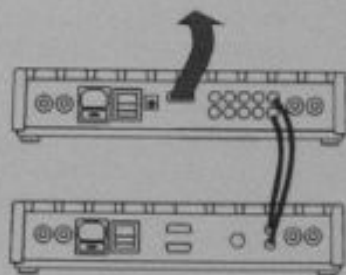
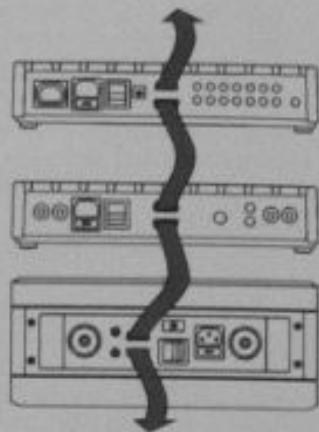
The Quad 77 system offers a simple performance upgrade path by adding another amplifier to an existing system. The 77AMPBUS makes it easy to connect together Quad 77 and Quad 707 stereo power amplifiers and Quad 77 monoblocks in any combination to produce high performance bi and tri-amped systems.



Add a Quad 77 stereo amplifier to the Quad 77 integrated amplifier to produce a bi-amplified system. (Note: use pre out on the integrated amplifier and phono inputs into the Quad 77 stereo amplifier).

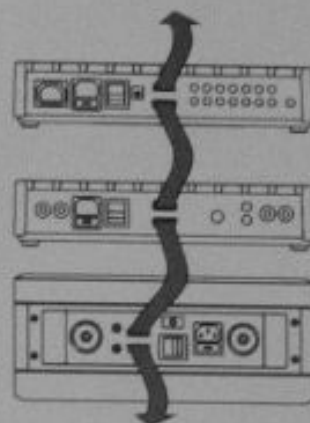


Add a Quad 77 stereo amplifier to a Quad 77 preamplifier and a Quad 77 stereo power amplifier to produce a bi-amplified system. Add a third Quad 77 stereo amplifier for a tri-amped system.

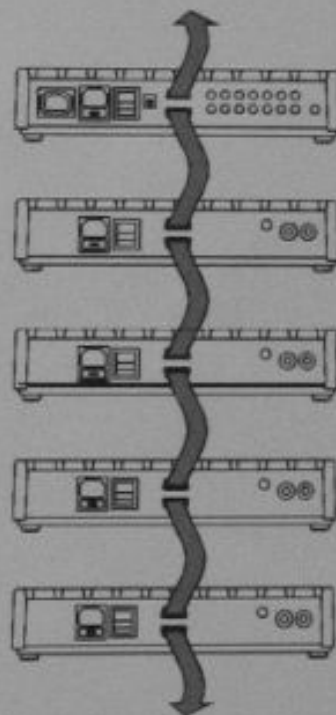




Add a Quad 707 stereo amplifier to a Quad 77 preamplifier and a Quad 77 stereo amplifier to produce a bi-amplified system which will take full advantage of the capabilities of your speakers. The energy spectrum of music programme is weighted towards the lower frequencies so it makes sense to have a larger amplifier to drive the woofer. (Note that this system will produce a total output of 280 watts per channel into 8 ohms and 400 watts per channel into 4 ohms, so should only be used with appropriate loudspeakers and with due respect to yours and your neighbours ears.) Add a second 707 for a tri-amped system. As an alternative you can substitute Quad 77 monoblocks for the Quad 707.



Add four Quad 77 monoblock amplifiers to a Quad 77 preamplifier to produce a bi-amped system. (Note that this system will produce a total output of 320 watts per channel into 8 ohms and 450 watts per channel into 4 ohms, so should only be used with appropriate loudspeakers and with due respect to yours and your neighbours ears). Add another two Quad 77 monoblocks for the ultimate tri-amped system. (Note that this system produces a total output of 480 watts per channel into 8 ohms and 675 watts per channel into 4 ohms. Handle with care).



With the A/V processor, you can use a Quad 77 integrated amplifier and two 77 stereo amplifiers, or a preamplifier and two 77 stereo amplifiers, or a 707 and two 77 stereo amplifiers or six 77 monoblocks. If you really wanted to go to town and bi-amp the front loudspeakers you could use nine monoblocks. Thanks to the bus the A/V processor can be used to process signal from any Quad 77 source on the bus as well as any A/V source connected to the processor itself.

