

# ELECTROSTATIC LOUDSPEAKER 63

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INSTRUCTION BOOK

QUAD

# QUAD ESL 63

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### **IMPORTANT**

READ THIS INSTRUCTION BOOK THOROUGHLY  
BEFORE ATTEMPTING TO UNPACK OR USE THIS  
LOUDSPEAKER

### **WARNING**

The Quad Electrostatic Loudspeaker-63 has very high internal voltages. No attempt must be made to remove the protective grilles or the baseplate.

Amplifiers which are not short circuit protected may be damaged by the protection circuits in this loudspeaker and should not be used with the Quad Electrostatic Loudspeaker-63.

### **Packing**

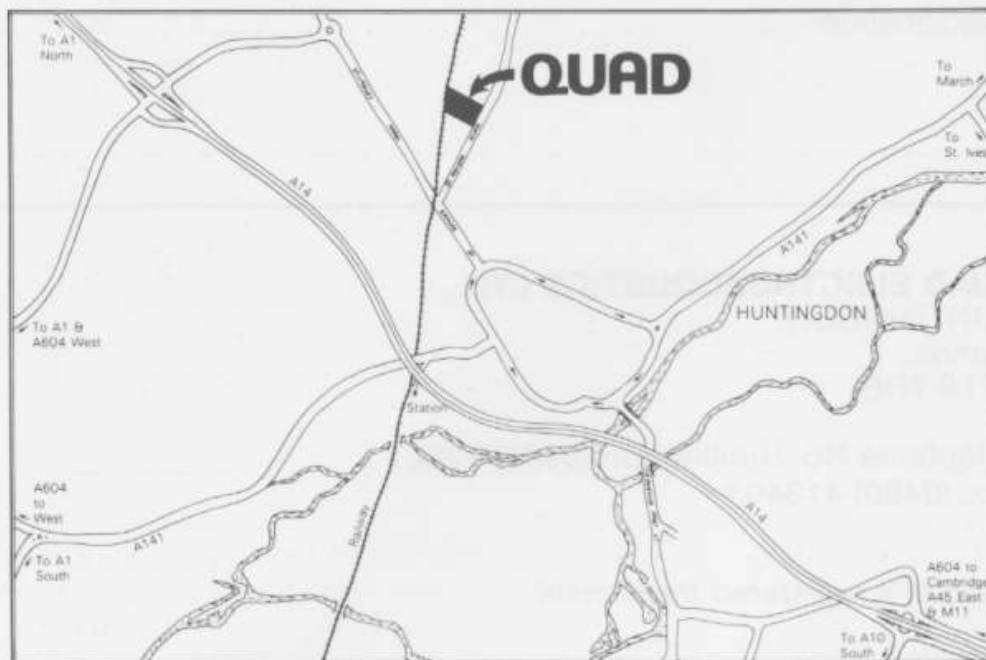
The Quad Electrostatic Loudspeaker-63 is completely assembled and the only accessories are the mains and signal connectors. To remove the loudspeaker from the pack, spread out the flaps of the open end of the cardboard carton and then invert the pack on to the floor, taking care not to let the contents slide out. Lift off the cardboard carton.

Packing should be retained in case the loudspeaker needs to be returned for service.

### **Service**

If servicing is required the loudspeaker should be returned to the supplier, to the agent for the country of purchase or to Quad. A brief note should be enclosed giving your name and address plus the reason for returning it. Quad offers same-day service from Monday to Friday except for bank holidays. The map below shows where to find us. Please call 0480 52561 to tell us that you are coming.

Circuit diagrams and service data for this Quad product are available from the manufacturer or distributor for a small charge.



## Guarantee

This loudspeaker is guaranteed against any defect in material and workmanship for a period of twelve months from the date of purchase.

Within this period we undertake to supply replacement parts free of charge provided that failure was not occasioned by misuse, accident or negligence. Labour and carriage costs are not covered unless by local agreement.

Within the U.K. the guarantee offered with this equipment does not limit the consumer's existing statutory rights. A separate guarantee card is not supplied with your Quad unit. Your guarantee begins on the day on which you take delivery.

## DESCRIPTION

The Quad ESL-63 is a full range electrostatic loudspeaker doublet. It consists of a very light electrically polarised diaphragm suspended between two sets of concentric annular electrodes. Signal is fed to the electrodes via sequential delay lines and the motion of the diaphragm produces a sound pressure pattern which is an exact replica of that from an ideal source placed some 30 cms behind the plane of the diaphragm.

## CONNECTIONS

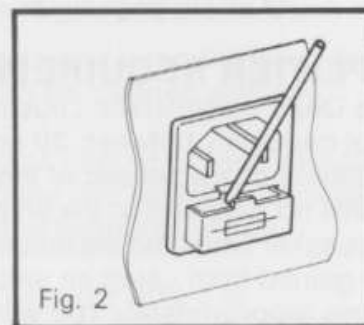
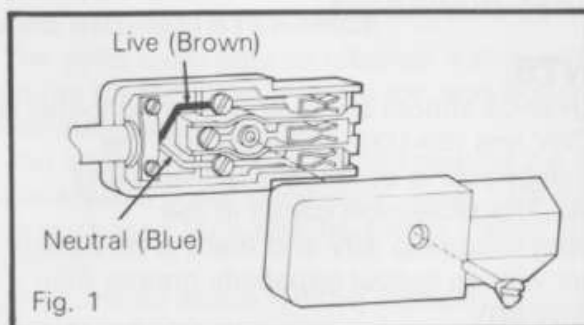
### A.C. Mains

The Quad Electrostatic Loudspeaker 63 requires A.C. mains energising and is designed for use on either 100-120V or 200-240V A.C. supplies. The correct operating voltage is clearly marked on the rear panel. Do not attempt to operate the loudspeaker on the incorrect A.C. voltage. In case of doubt, contact your local distributor or dealer. If it is necessary to change the operating voltage, the loudspeaker must be returned to the manufacturer or distributor.

The Quad ESL-63 is double insulated and needs only a two core A.C. cable.

An A.C. mains connector is supplied and should be wired as shown in the accompanying sketch.

The Quad ESL-63 draws minimal current and may be left on continuously. A red LED beside the ON/OFF switch indicates that the speaker is switched ON.



### Fuse

A surge-resisting fuse (63mA or 220/240V, 100mA for 110/120V) is housed in the mains input receptacle. To obtain access to the fuse, unplug the mains supply and use a small screwdriver to lever open the drawer carrying the fuse. (See Fig. 2).



### Audio Input

Input is via 4 mm sockets/binding posts. For runs of up to 10 metres 24/0.2 mm cable with a rating of 6 amps or its equivalent should be used to connect the loudspeaker to the amplifier. Longer runs may require heavier cable. The basic rule is that the total resistance of the speaker cable should not exceed 5% of the loudspeaker impedance, i.e.  $0.35\Omega$ . Inductance should not exceed  $1\mu\text{H}$  per metre and capacity can be ignored. Exotic connecting cables are not necessary.

### Signal Polarity

The loudspeaker terminals are colour coded, red being positive and should be connected to the amplifier output accordingly. Polarity is conventional, a positive voltage applied to the positive terminal producing an increase of pressure at the listening position.

If in doubt about phasing this can be checked later.

### AMPLIFIER REQUIREMENTS

The Quad electrostatic Loudspeaker-63 should be used with an amplifier of output capability between 20 and 30V rms (50-100 watts into  $8\Omega$ ). The impedance characteristic of the loudspeaker is essentially resistive and presents no problems to the amplifier. The protection circuit in the loudspeaker limits the maximum input voltage to 40V and there is no benefit to be gained from using an amplifier with an output capability greater than 30V rms (approximately 100 watts into  $8\Omega$ ).

Amplifiers with an output capability in excess of 35V rms (approximately 150 watts into  $8\Omega$ ) may be used, but with extreme caution. See the section on loudspeaker protection.

The Quad 405 power amplifier should be used without the voltage limiters in circuit.

## **LOUDSPEAKER PROTECTION**

The Quad Electrostatic Loudspeaker-63 incorporates circuitry to prevent damage from excessive programme input signals.

Input signals in excess of 40V (approximately) are compressed by the protection circuit so that the signal fed to the loudspeaker is kept within safe limits. With very powerful amplifiers (outputs in excess of 35V rms (150 watts into 8 $\Omega$ ) care should be taken to ensure that the protection circuit is not required to operate continuously as this will cause overheating and damage the protection circuit.

Steady state signals in excess of 10V rms should not be fed to the loudspeaker.

The loudspeaker elements are completely protected from excessive input signals by a circuit which shorts the signal input from the amplifier if arcing is about to occur. Signal input is automatically restored once the speaker elements are safe.

When the AC input is switched off or disconnected the signal input protection circuits operate to prevent excessive signal being fed to the loudspeaker elements and care should be taken to ensure that the loudspeakers are not driven for long periods (minutes) with no AC applied.

Amplifiers which are not short circuit protected may be damaged and should not be used.

## **LOUDSPEAKER PHASING**

Each loudspeaker should be connected to its appropriate amplifier output so that the two pairs of wires are connected in the same way, to ensure that the speakers operate in phase. The input terminals are colour-coded to facilitate this.

If there is any doubt about the way in which the loudspeakers are connected, their phasing may be checked by playing a disc in mono over both channels, when the sound should appear to emanate from a point midway between them. If this is indefinite the connections to either of the loudspeakers, but not both, should be reversed. Correctly connected the loudspeakers will give a definite centre sound source accompanied by a more full-bodied sound in the tenor and bass registers.

## **CARE AND MAINTENANCE**

The grille cloth may be cleaned with a soft brush or a hand held or cylinder vacuum cleaner. The wooden top and bottom can be cleaned with any proprietary furniture polish.

The loudspeaker is protected against the ingress of dust etc and regular maintenance is not necessary. Great care has gone into selection of materials to ensure long term stability under a wide range of temperatures and humidity.

In countries where relative humidity regularly exceeds 90% it is recommended that the listening room be air conditioned for optimum performance.

The wooden top of the loudspeaker can be removed simply by sliding it to the right (viewed from front of the loudspeaker) giving access to the speaker grille cloth fixing.

## **THE LISTENING ROOM AND LOUDSPEAKER PLACEMENT**

However good the loudspeaker the final results will depend very largely on the acoustic characteristic of the listening room and the position of the loudspeakers in it. Do not be afraid to experiment with both position and orientation and make a point of trying some of the less obvious as well as the more obvious positions. The benefits obtained from time spent doing this can be very rewarding.

The subject of room acoustics is complex and beyond the scope of this booklet and it is assumed that the loudspeaker will be used in a room with moderate reverberation, neither too bright nor over damped. Furnishings can alter the acoustic characteristics of the listening room, and here common sense is the best guide. If the room is of reasonable size stands are unlikely to be helpful but it does no harm to experiment, using books or boxes to raise the speakers, to see whether stands are likely to be worthwhile in your room. There are stands on the market designed for the ESL-63 and your dealer will have details.

The loudspeaker has constant directivity over a wide angle in both horizontal and vertical planes, so that the response does not vary with the height of listeners' ears from the floor.

When experimenting it is preferable to use good recordings or works with which you are familiar in the concert hall or good quality speech.

The Quad ESL-63 being a dipole source has considerable advantages over conventional loudspeakers in terms of room placement. No energy is radiated in the plane of the diaphragm and as a consequence the respective axial room modes are discriminated against. Normally the loudspeaker is placed at an angle to both horizontal room axes and will excite both sets of horizontal axial modes 3dB less than with a conventional source and discriminate entirely against the vertical axial modes.

The loudspeakers should be placed at least 60 cms (2 ft) from the rear wall of the listening room and angled towards the listener and never in corners or alcoves or behind furniture. Because the loudspeaker is a totally homogeneous sound source it will be found that the loudspeakers can be placed considerably further apart than normal, broadening the stereo sound stage. Close proximity to the side walls is not detrimental to performance. Simple geometry will show that if the loudspeaker is placed at an angle to the wall, there will be no audible reflection at the listening position.

If there is a tendency for the loudspeaker to lean forward when standing on a deep carpet, we recommend removing the plastic plugs from the two rear feet.

## PROGRAMME MATERIAL

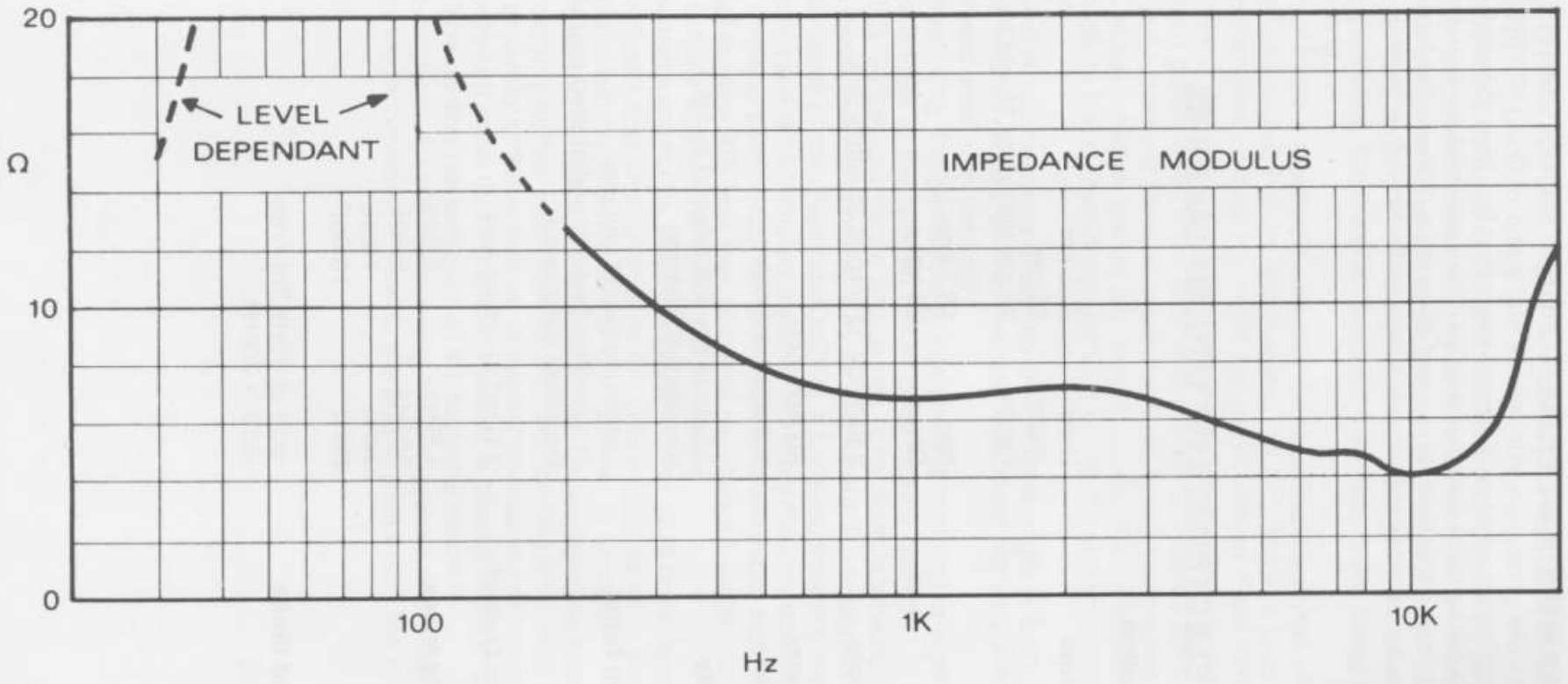
A small note of caution. We believe that a pair of Quad ESL-63's gives a more realistic picture of an acoustic event that has been possible before, but only if the best source material is used. The loudspeakers are very revealing of faults in recording techniques and ownership of these loudspeakers will cause you to reassess the virtues of your collection of recordings.

## QUAD ELECTROSTATIC LOUDSPEAKER-63

### Specification

<b>Dimensions</b>	Height	92.5 cm
	Width	66 cm
	Depth	27 cm including 15 cm base
<b>Weight</b>	Net	18.7 kgs.
	Gross	23 kgs.
<b>A.C. Supply</b>	240/200V 120/100V 50-60Hz 5VA	
<b>Impedance/ frequency</b>	8 $\Omega$ nominal see attached curve	
<b>Sensitivity</b>	1.5 $\mu$ bars per volt referred to 1m. (i.e. 86dB/2.83Vrms).	
<b>Maximum Input</b>	Continuous input voltage	10Vrms
	Programme peak for undistorted output	40V
	Permitted peak input	55V
<b>Maximum Output</b>	2 N/m <sup>2</sup> at 2m on Axis	
<b>Directivity Index</b>	125Hz	5.0dB
	500Hz	6.4dB
	2kHz	7.2dB
	8kHz	10.6dB
<b>Axis Band limits (Low Level)</b>	-6dB at 35Hz 3rd order	
	-6dB > 20kHz.	







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