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Quad is a registered trade mark

Electrostatic Loudspeaker 63

Instruction Book

QUAD ESL 63

ELECTROSTATIC LOUDSPEAKER

INSTRUCTION BOOK

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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.

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 UK the guarantee offered with this loudspeaker does not limit the consumer's existing statutory rights.

Packing

The Quad Electrostatic Loudspeaker-63 is completely assembled and the only accessory packed is a mains input connector. 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 must be retained in case the loudspeaker needs to be returned for service.

Service

If the loudspeaker does not appear to function correctly contact the manufacturer or distributor. Do not return the loudspeaker without authorisation. Do not attempt to remove the protective grilles or baseplate.

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.

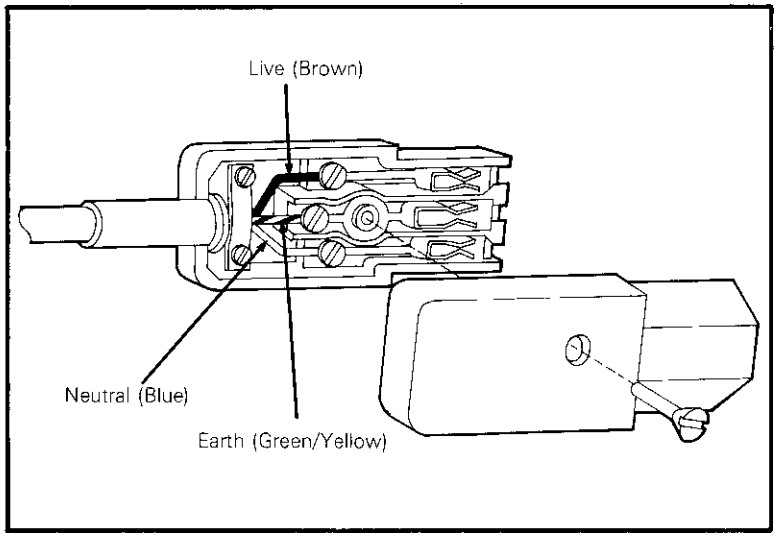
CONNECTIONS

A.C. Mains

The Quad Electrostatic Loudspeaker-63 requires mains energising and is designed for use on 100-120/200-240V 50/60Hz supplies.

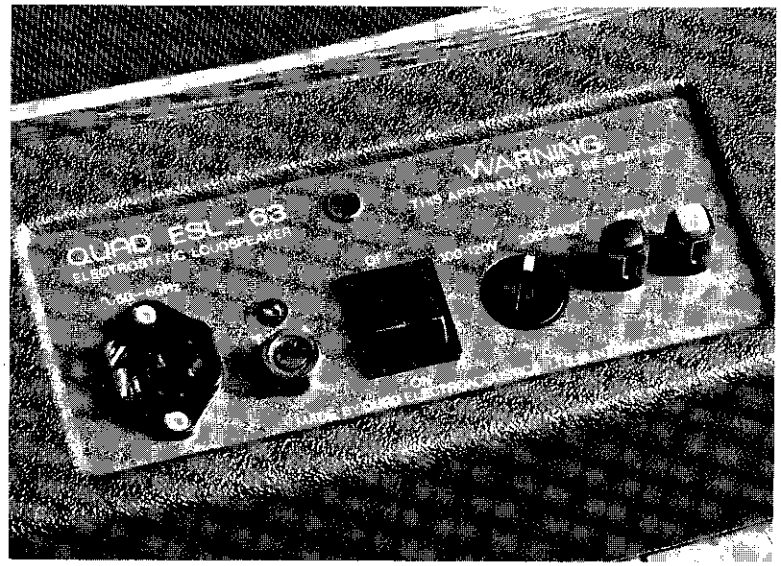
Before connecting to the mains supply check to ensure that the voltage selector setting is correct.

A mains connector is supplied with each loudspeaker and should be wired in accordance with the internationally agreed code. Green/Yellow earth, Brown live and Blue neutral.



The Quad Electrostatic Loudspeaker-63 draws minimal current and may be left on continuously if desired. A red LED beside the on/off switch indicates that mains power is applied.

The loudspeaker must be earthed.



Signal

Signal input is via spring loaded terminals. 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. 0.35Ω. Inductance should not exceed 1μH per metre and capacity can be ignored. Exotic interconnecting 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 8Ω). 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 40$\hat{V}$ and there is no benefit to be gained from using an amplifier with an output capability greater than 30V rms (approximately 100 watts into 8Ω).

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

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

LOUDSPEAKER PROTECTION

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

Input signals in excess of 40$\hat{V}$ (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 8Ω) 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 are of solid afrormosia and 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 upon the acoustic characteristic of the listening room and the position of the loudspeakers within it. It cannot be emphasised too strongly that optimum results will only be obtained if time is invested in experimenting with the position of the Quad ESL-63's in your own listening room. The benefits obtained will be most rewarding. The optimum position for a pair of loudspeakers in any given room is approximately 1/7 of the way along each diagonal, but this is seldom practical, and it is normally necessary to find optimum positions for loudspeakers which also meet the criteria for domestic harmony.

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.

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.

It is recommended that the loudspeakers are 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.

The Quad ESL-63 is designed to be floor standing but in certain circumstances particularly in smaller rooms it may be advantageous to lift them up and there are a number of suitable proprietary stands on the market.

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.

PROGRAMME MATERIAL

A small note of caution. We believe that a pair of Quad ESL-63's gives a a more realistic picture of an acoustic event than 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 reasses the virtues of your collection of recordings.

QUAD ELECTROSTATIC LOUDSPEAKER-63

Specification

Dimensions	Height	92.5 cm	
	Width	66 cm	
	Depth	27 cm including 15 cm base	
Weight	Net	18.7 kgs.	
	Gross	23 kgs.	
A.C. Supply	240/200V 120/100V 50-60Hz 5VA		
Impedance/ frequency	8Ω nominal see attached curve		
Sensitivity	1.5μbars per volt referred to 1M. (i.e. 86dB/2.83Vrms).		
Maximum Input	Continuous input voltage		10Vrms
	Programme peak for undistorted output		40$\hat{V}$
	Permitted peak input		55$\hat{V}$
Maximum Output	2 N/m² at 2m on Axis		
Directivity Index	125Hz	5.0dB	
	500Hz	6.4dB	
	2kHz	7.2dB	
	8kHz	10.6dB	
Axis Band limits (Low Level)	-6dB at 35Hz 3rd order -6dB > 20kHz.		

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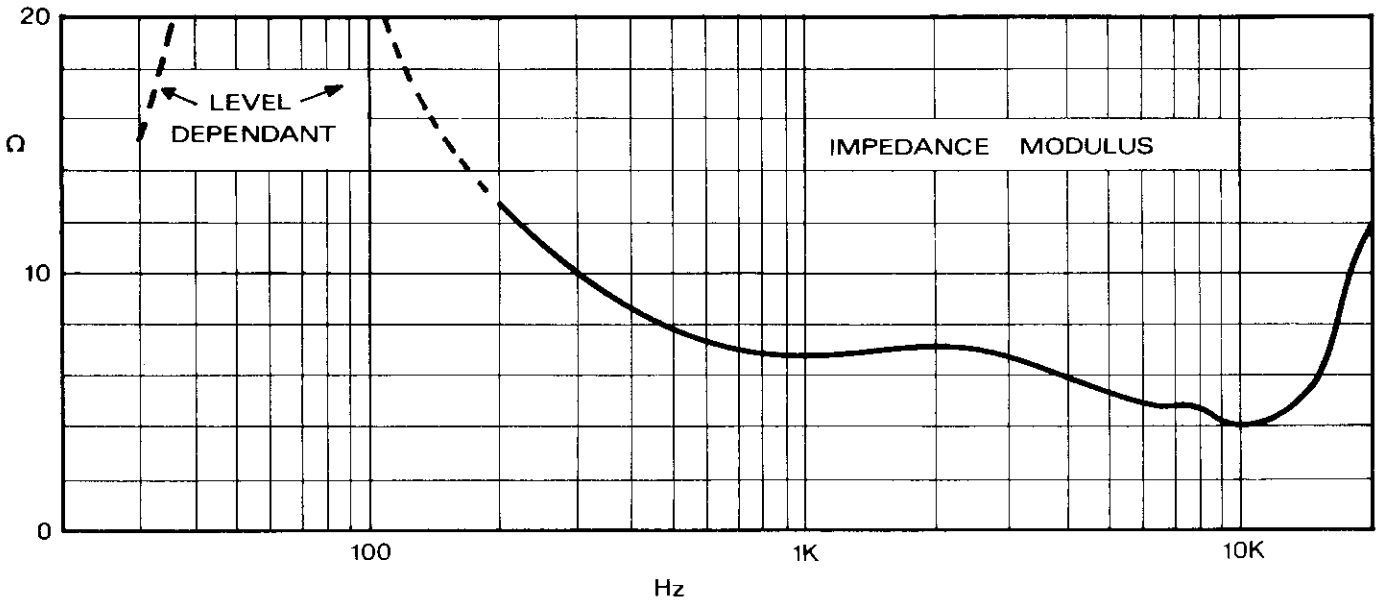

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