REFERENCE SERIES MODEL 105.2

KEF

REFERENCE SERIES MODEL 105.2

Loudspeaker technology has suffered historically from a lack of objective research and has relied heavily on subjective evaluation by the human ear.

Now KEF have combined subjective evaluation with objective standards.

The result is the Model 105.2, a loudspeaker in a class of its own which reproduces speech and music faithfully even at realistic concert hall levels.

The Model 105.2 is a 3-way loudspeaker system embodying a number of new and original design features.

Flat frequency response of direct sound.

Minimum inter-unit time delay.

Visual indication of optimum listening area.

Variable system geometry extends choice of listening position.

Contoured mid and high frequency enclosures reduce colouration in the diffuse sound field.

Unique bass loading technique gives higher efficiency and greater power handling capacity than conventional systems.

Electronic overload protection (S-STOP) protects all drivers and filters against fault conditions.

Peak level indicator warns when amplifier reaches overload limits.

Computer matching of component parts and drive units to better than 0.5dB.

The Model 105.2 combines natural tonal quality with lifelike stereo images over a wide listening area, at realistic concert hall levels.

The bass, mid and high frequency drive units – in their separate enclosures – are positioned so as to retain subjectively important time relationships.

The size and shape of the high and mid frequency enclosure is precisely chosen to reduce sound field disturbance not only in the forward direction but also at oblique angles. These features assist in creating realistic depth perspective and accurate stereo definition.

The close tolerances needed to realise

the full design potential of the Model 105.2 are maintained in production by a novel computerised matching and grading procedure for drive units and dividing network components.

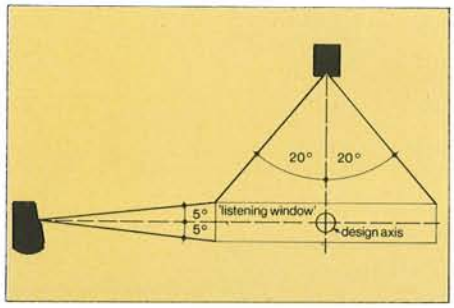
The Model 105.2 is designed to provide concert hall listening levels in the home from amplifier outputs of up to 200W and the system is fully protected against accidental overload by a self-powered electronic circuit (S-STOP).

THE LISTENING WINDOW

In all practical multi-unit loudspeakers, the requirements for accurate stereo definition can only be realised within a limited angle.

Where the units are mounted in a vertical line, the angle will be wider horizontally than vertically due to the phase relationships between drivers in the crossover region. In the Model 105 the frequency response is maintained substantially flat over a sector ±20° horizontally and ±5° vertically with respect to the listening axis. The sector defined by these angles is called the listening window, within which conditions for critical stereo listening will be achieved.

A light has been incorporated in the head assembly to facilitate the precise alignment of the listening window.



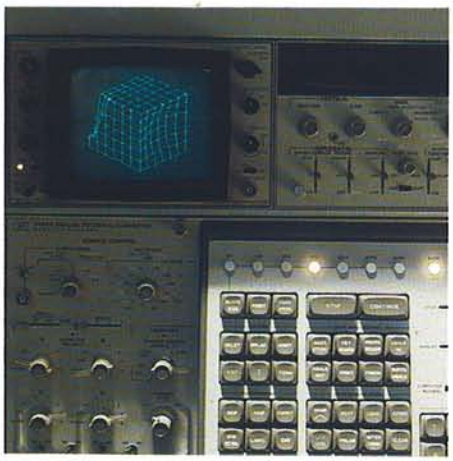
The head assembly can be both tilted vertically ±7° and swivelled horizontally ±30° to provide extra freedom in the choice of listening position.

FLAT RESPONSE DOWN TO 38 Hz

The frequency response of every 105.2 is guaranteed to within ±2dB from 38Hz to 22kHz. This results not only from a system engineering approach in which the design of the enclosures, drive units and dividing networks are developed together, but also from the novel computer grading and matching of drive units and components.

For the low frequencies, KEF have devised a new bass loading technique resolving the complex interactions between the electrical, mechanical and acoustic charactersitics of the bass system. Comparison with alternative low frequency loading methods shows that the Model 105.2 bass system has greater efficiency than the "infinite baffle" enclosure and better transient performance than a vented cabinet.

MODAL ANALYSIS



Using advanced computer-aided modal analysis techniques, KEF conducted a detailed examination of enclosure vibrations under dynamic conditions.

As a result the shape of the bass enclosure and its internal bracing were optimised to reduce resonances. A special flexible KEF-mount was developed to mechanically isolate the B300 bass unit from the enclosure. The reduction in resonance and colouration in the lower mid-frequency range is quite remarkable.

S-STOP PROTECTION CIRCUIT

Accidental overloading can occur, even in professional studios and this may impair the calibration or at worst destroy some vital component in conventional loudspeakers. Fuse protection is not always completely reliable and it is certainly inconvenient.

KEF have developed a refined overload protection circuit which is completely automatic in operation. Called S-STOP, standing for Steady State and Transient Overload Protection, this new protection system is self-powered and therefore does not require batteries or mains supply.

Three protection modes are provided – peak, thermal and low frequency excursion, and whenever the safe limits are exceeded a relay operated attenuator reduces the input to a safe level.

PEAK The peak protection mode causes the S-STOP circuit to operate whenever peak voltages to the system are so high as to be damaging the dividing network, or likely to cause audible distortion.

THERMAL In the thermal sensor mode the input level to each drive unit is monitored and whenever the safe operating temperature of any voice coil is exceeded, S-STOP is activated.

EXCURSION The excursion of the low frequency unit is also monitored and S-STOP is again activated whenever the peak input level is sufficient to cause the maximum linear excursion of the base unit to be exceeded.

METICULOUS PRODUCTION CONTROL

Every drive unit is measured individually. Performance data are permanently recorded in digital form and used to match pairs of drive units and group them into sets prior to assembly. The crossover networks constructed from close tolerance components are matched in the same way to guarantee overall system performance.

As a result of the high degree of consistency obtainable by these modern techniques, production tolerances between each pair of stereo speakers have been reduced to less than half a decibel over the greater part of the audio-frequency range.

The standard of performance achieved by the designers is no longer confined to a few prototypes for demonstrations and press reviews, but is realised in full for each and every purchaser.

SPECIFICATION

Frequency range	38Hz to 22kHz ±2dB at 2m on design axis (−10dB at 28Hz and 27kHz)
Directional characteristics	Within 1dB of response on design axis up to 20,000Hz for ±5° vertically up to 10,000Hz for ±20° horizontally
Maximum output	107dB spl on programme peaks under typical listening conditions
Characteristic sensitivity level	85dB spl at 1m on measuring axis for pink noise input of 1W (anechoic conditions)
Distortion	Second harmonic less than 1% from 50Hz to 20,000Hz Third harmonic less than 1% from 20Hz to 20,000Hz Measured at 1m on measuring axis at mean spl of 90dB, anechoic conditions
Enclosures	Low frequency enclosure: 70 litres Mid and high frequency enclosure: 8.5 litres
Nominal impedance	8 ohms
Power handling capacity:* Programme rating	200W
Maximum continuous sinusoidal input	20V rms, 20-50Hz rising to 28V rms from 100-500Hz falling to 20V rms from 1,000-2,500Hz falling to 7V rms from 4,000-20,000Hz
*Electronic protection (S-STOP)	The system is protected against any continuous or intermittent fault conditions which produce input signals not greater than 70V peak from DC to 50kHz.
Peak level indicator	Switchable. LED flashes to indicate input power levels of 50, 60, 80, 100, 125, 160 and 200W.
Listening window indicator	LED glows continuously to indicate orientation of head assembly and facilitate alignment of listening window
Dimensions	965 x 415 x 455mm
Weight	36kg each (80lb)
Finishes	Walnut, teak, rosewood and black ash veneers with black or brown grille fabric as appropriate

KEF

KEF products are manufactured in England and distributed in the United Kingdom by:
KEF Electronics Ltd
Tovil
Maidstone
Kent ME15 6QP England
Telephone: 0622 672261
Telex: 96140

Distribution in the USA by:
Intratec
PO Box 17414
Dulles International Airport
Washington, DC 20041 USA
Telephone: (703) 435 9100

KEF reserve the right to incorporate developments and amend the specifications without prior notice, in line with continuous research and development.

Part no: PL213 ENO1 Printed in England