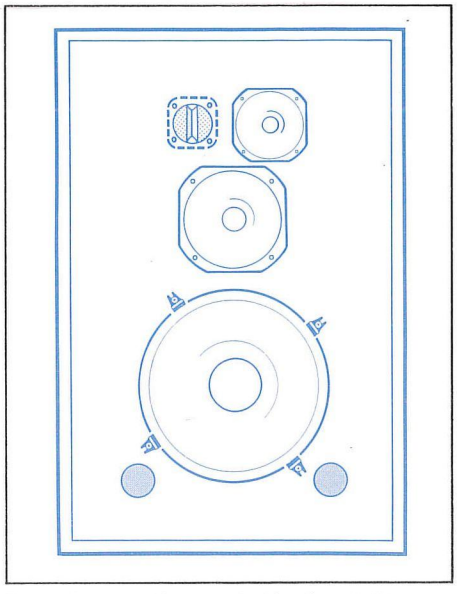
Professional Series

Model 4315 Studio Monitor



Accurate, smooth reproduction from 35 to 20,000 Hz, ±3 dB

40 dB SPL at 30 feet with a 1-milliwatt input

95 dB SPL at 10 feet at one-half rated power input

Components: 12-inch low frequency loudspeaker, 8-inch midrange loudspeaker, 5-inch high frequency loudspeaker and ultra-high frequency transducer

Balance controls located behind the removable grille

Oiled walnut or textured gray enclosure

The 4315 Studio Monitor

The 4315, a compact studio monitor, is an extension of the research and development that produced the 4340, 4341 and 4350, JBL's latest, high powered and most accurate monitors. Designed for applications in which the general sound character of the larger units is required, the 4315 accurately reproduces the full range of musical fundamentals and overtones at sound pressure levels approaching those of the larger systems.

The 4315 is characterized by exceptionally smooth, wide-band reproduction, clarity, transient response and a controlled dispersion pattern. Its performance is obtained through total integration of the components that make up its four-way system. Each transducer reproduces only that portion of the audio spectrum for which it is specifically designed, resulting in greatest utilization of each driver's frequency response, transient capability and dispersion characteristics. The effect is a true monitor system, compact in physical size, whose sound distribution pattern is such that the operator can be located relatively close to the enclosure.

Low Frequency Loudspeaker

The 12-inch low frequency loudspeaker features solid bass reproduction, smooth response well beyond its crossover frequency and excellent transient response combined with maximum efficiency consistent with the bandwidth of the driver. Mounted in a ported enclosure having an internal volume of 2.5 cubic feet, the unit is energized by a 13-pound magnetic assembly housing an Alnico V magnet. Closed construction and precise construction tolerances of the assembly concentrate a magnetic field of 12,000 gauss in the voice coil gap. A 4-inch voice coil, fabricated of copper wire milled to a ribbon and hand wound on edge, is mounted on a heat resistant support affixed to a rigid cone having optimum mass, density and rigidity. The cone is supported by a highly flexible termination that damps spurious resonances and allows the long, linear excursion necessary for high volume levels at very low frequencies.

Midrange Loudspeaker

The smooth performance and instantaneous transient response of the 8-inch midrange driver is responsible for the outstanding instrumental clarity and vocal definition of the system. A closed magnetic assembly, weighing 6½ pounds, concentrates all the energy of an Alnico V magnet in the voice coil gap. The 3-inch edgewound copper ribbon voice coil is suspended within a powerful magnetic field having a flux density of 10,200 gauss. The integrally stiffened cone is terminated with an exclusive JBL ring compliance that allows long excursions while maintaining linear travel.

High Frequency Loudspeaker

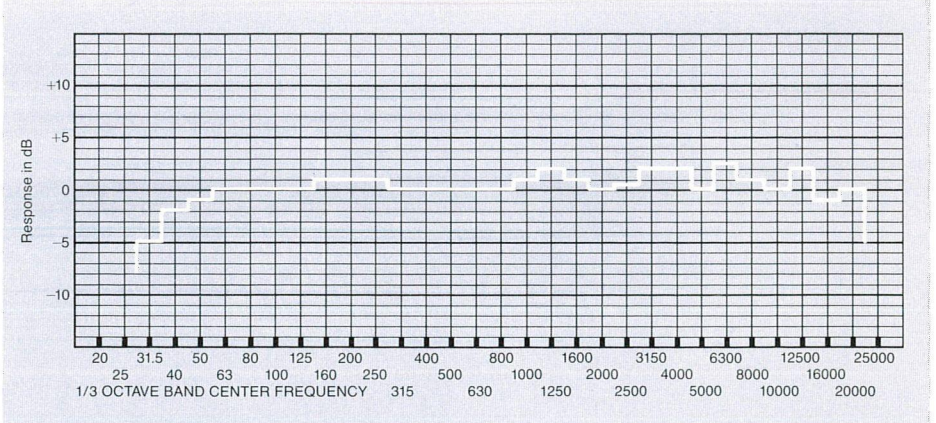
Smooth, widely dispersed high frequency reproduction is provided by a 5-inch cone transducer capable of considerable acoustic output and wide dispersion. It utilizes a ⅞-inch diameter edgewound copper ribbon voice coil suspended within a powerful magnetic field of 16,500 gauss generated by a 2¾-pound closed magnetic assembly containing an Alnico V magnet. The voice coil is edgewound for exceptional transient response and acoustic efficiency. Like the midrange loudspeaker, the unit is housed in a separate sub-chamber within the 4315 enclosure to prevent acoustical interaction with the other loudspeakers of the system.

Ultra-High Frequency Transducer

The exceptional clarity and realism of overtones lying above 8000 Hz is produced by the ultra-high frequency transducer. The unit consists of a compression driver and diffraction horn specifically designed for reproduction and dispersion of energy at the extreme high end of the audio spectrum. The compression driver consists of a 3¼-pound magnetic assembly energized by an Alnico V magnet. Its 1.75-inch edgewound aluminum ribbon voice coil, suspended within a field having a flux density of 16,500 gauss, is affixed to a heat resistant support bonded to a ring diaphragm pneumatically formed of .0022-inch thick aluminum stock. Output from the diaphragm is directed through the integral diffraction horn, which produces the unit's wide high frequency dispersion pattern.

Frequency Dividing Network

The 4315 is provided with a high level, passive frequency dividing network having circuitry designed with consideration for the various performance characteristics of the drivers and their location on the enclosure baffle panel. The network has been designed for continuous high power application; capacitors are non-inductive, non-polarized types with high AC current capacity, and special inductors are used to minimize power losses within the network. Each inductor is calibrated on a sensitive electronic bridge and its value set precisely.



Frequency response of the 4315 taken with 1/3-octave band pink noise. Measured response contour of a typical system averaged through an inclusive arc of 80° in the horizontal and 60° in the vertical planes does not deviate more than 2 dB from the above curve.

Test Conditions
The accompanying graph and specifications were compiled from measurements made under carefully controlled conditions. The loudspeaker system was mounted flush in the center of a large, flat baffle in an anechoic environment. Laboratory condenser microphones were suspended in a spherical pattern around the acoustic center of the system sufficiently distant to be out of the near field so that data taken would reflect the total output of the combined transducers. In keeping with accepted laboratory practice, all equipment was checked and calibrated before tests were run.

Enclosure
In keeping with current trends in studio design that encourage creativity, JBL studio monitor enclosures feature contemporary styling and are offered in two finishes, each with a complementary grille color. The enclosure, however, contributes much more than striking appearance. The low frequency loudspeaker is housed in a chamber having an internal volume of 2.5 cubic feet. The midrange loudspeaker is enclosed in a separate, isolated sub-chamber having an internal volume of 0.1 cubic feet. The internal volume of the acoustic chambers and physical configuration of the ducted ports are carefully selected to properly load the low frequency and midrange loudspeakers for optimum bass response and to control cone excursion, thus minimizing distortion and maximizing power handling capacity of the drivers. To eliminate resonance, the enclosure is constructed of dense ¾-inch thick stock with a 15-ply baffle panel; all joints are carefully lock mitered and glued; the back, side, top and bottom panels are lined with acoustic damping material and are each stiffened by multiple braces glued and screwed to the panel and to the adjacent surfaces of the enclosure.

Specifications

Maximum Power Input[1]	60 Watts steady state at 8 ohms
Nominal Impedance	8 ohms
Power Output[2]	97 dB SPL measured at 10 ft. (3.0 m) in a room volume of 2000 cu. ft. (56.6 m^3) with ½ rated power input.
Frequency Response	
Sine Wave, On-Axis	35 to 20,000 Hz, ±3 dB
1/3-Octave Band (400 Hz Reference)	−5 dB at 31.5 Hz +2 dB at 6.3 kHz 0 dB at 20 kHz
Polar Response	No less than −3 dB at 80° horizontal and 60° vertical to 16 kHz
Sensitivity[3]	79.5 dB SPL measured at 10 ft. (3.0 m) with a 1-Watt input averaged from 100 to 1000 Hz 40 dB SPL measured at 30 ft. (9.1 m) with a 1-milliwatt input averaged from 100 to 1000 Hz
Distortion	
1/2 Power, 95 dB SPL/10 ft. (3.0 m), Single Frequency	0.5% or less third harmonic generation from 35 to 20,000 Hz
Crossover Frequencies	400, 2000 and 8000 Hz
Finish	Textured gray or oiled walnut
Grille	Black fabric with the gray finish; Dark Blue fabric with walnut
Enclosure Volume	
Low Frequency Chamber	2.5 cu. ft. 71 liters
Midrange Chamber	0.1 cu. ft. 2.8 liters
Enclosure Dimensions	33⅝" x 20½" x 10⅞" deep 85 x 52 x 28 cm
Net Weight	91 lbs 41 kg
Shipping Weight	103 lbs 47 kg

[1]Power amplifier headroom recommendation is 3 dB minimum, i.e., for a 60-Watt rating use a 120-Watt amplifier.
[2]Power output measured with a B&K Impulse Precision Sound Level Meter.
[3]Unlike many "theater type" loudspeaker systems that exhibit sensitivity peaks in the midrange region, the 4315 provides substantially the same sensitivity through the full range of audible frequencies. Measured sensitivity below 500 Hz or above 2000 Hz may be considerably greater than that of other systems with higher EIA Sensitivity ratings.

Professional Series
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