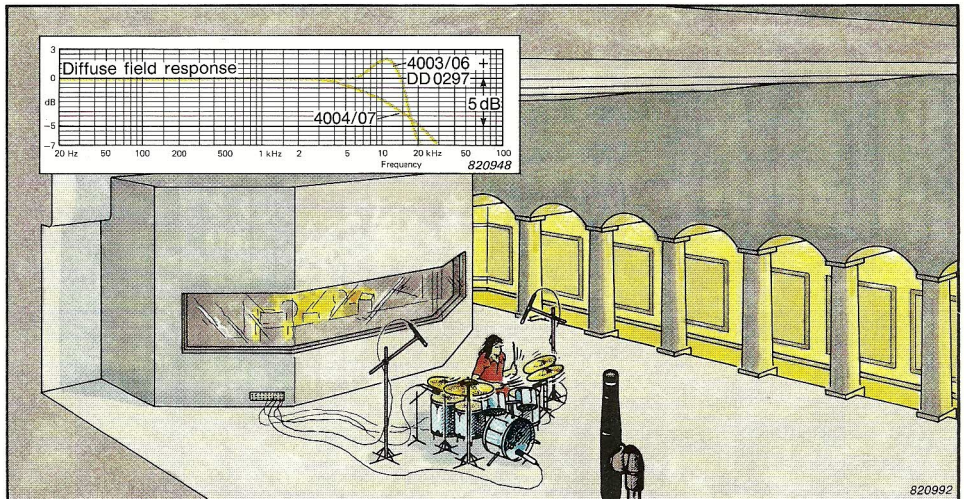


Clean Characteristics, Clean Sound

Diffuse Fields

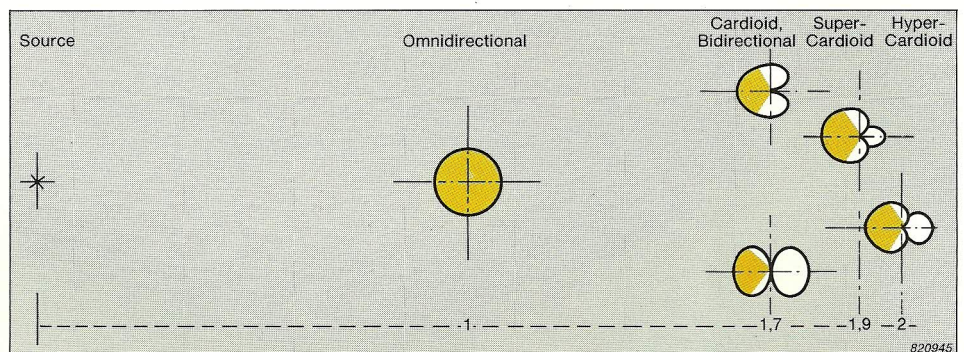
Most studio microphones have relatively large diaphragms which tend to impair the diffuse field response of the microphones. When miking the ambience of a location or in a predominantly reverberant room, the microphone lacks "reach" and a blurred spatial image of the room boundaries is obtained. The diameters of B&K cartridges have been kept as small as possible while maintaining the requirements on sensitivity. The diffuse field response of smaller diameter Types 4004 and 4007 is linear (± 2 dB) up to 11 kHz. Larger diameter, low noise Types 4003 and 4006 are supplied with an additional protection grid which may be fitted in place of the normal grid to give a flat diffuse field response up to approximately 15 kHz.



To capture the "ambient sound" of a large room a microphone is placed at a distance of several metres. The curves show the diffuse field response of B&K Microphones

Leakage

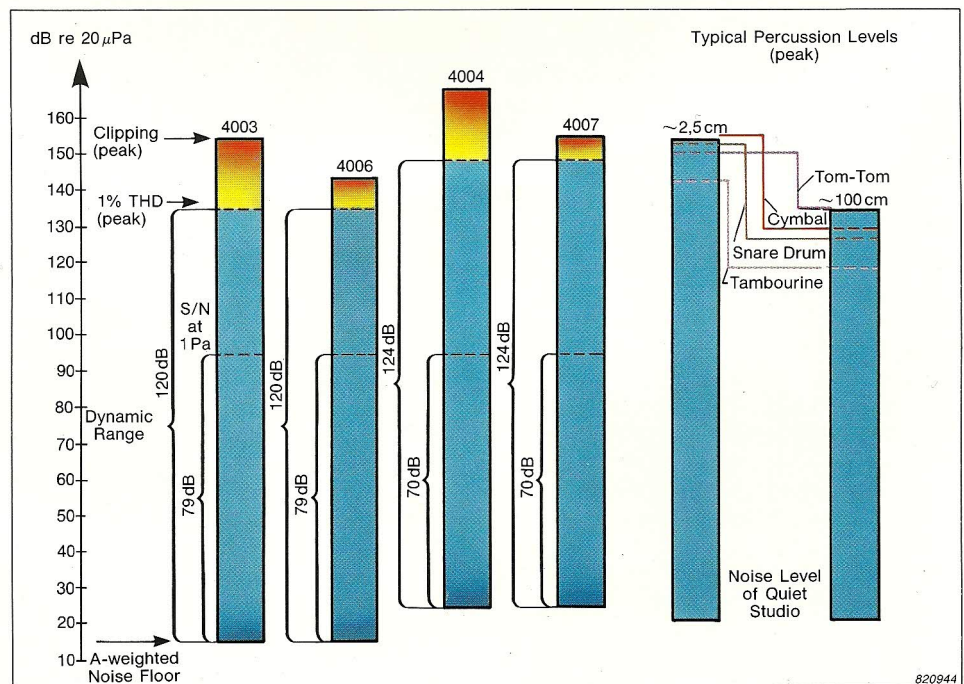
In popular music recordings, where it is customary to record instruments on separate tracks, acoustic leakage problems may occur when an ensemble is recorded simultaneously. While it may seem natural to use a directional microphone for maximum separation, the amount of leakage can also be controlled by altering the source-to-receiver distance. Since an omnidirectional microphone does not exhibit any proximity effects it may be placed closer to the source. An omni placed at a distance of 1 metre receives the same proportions of direct and diffuse sound as a cardioid microphone placed at 1,7 metres.



Source-to-receiver distances for various directional characteristics resulting in the same proportions of direct and diffuse sound

Dynamic Range

The noise floor of Types 4003 and 4006 is very low, typically 15 dB(A) with a guaranteed maximum of 17 dB(A). (Studio residual noise levels range from 20 to 25 dB(A).) For Types 4004 and 4007, which are designed specifically for high-level applications, the upper limit of the dynamic range is approximately 10 dB higher than that of Types 4003 and 4006. The noise floor is correspondingly higher (typically 24 dB(A) with a guaranteed maximum of 26 dB(A)). The dynamic ranges of the Microphones are shown in the figure.



Dynamic ranges of the Microphones and typical levels of some percussion instruments



Photo courtesy of Easy Sound Recording, Copenhagen

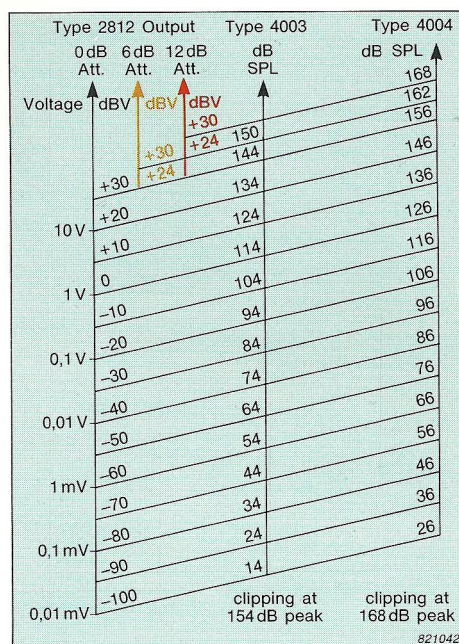


B & K Line Level System

Increased Headroom and Transformerless, Line Level Output with Microphone Power Supply Type 2812

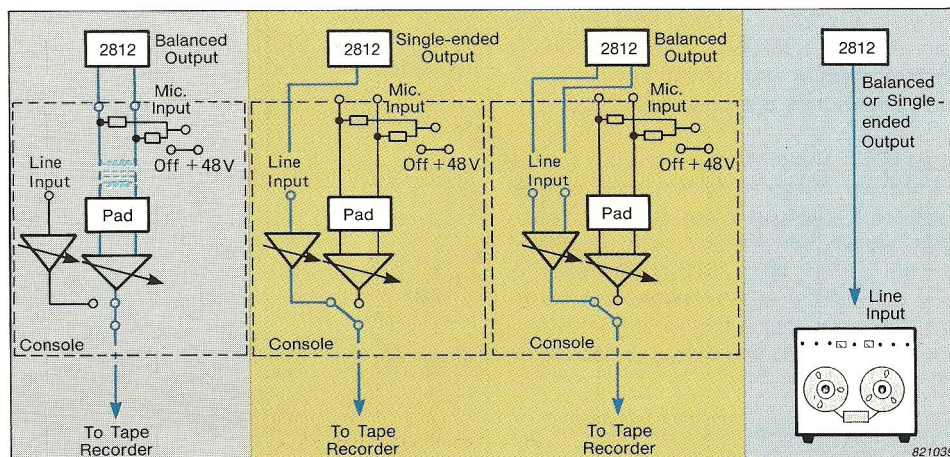
For optimum utilization of the wide dynamic range of the Microphones, B & K has developed a 130 V DC powering system for Line Level models Types 4003 (Low Noise) and 4004 (High Intensity). These Microphones are powered using Two Channel Microphone Power Supply Type 2812. The high output of this system (in balanced mode 18dB higher than the corresponding Phantom models) is ideal for state-of-the-art recordings where line inputs are used to keep the signal path as simple as possible and preserve the integrity of the audio signal. Dispensing with the transformer circuitry used in standard P48 Phantom systems, and thus avoiding core saturation at low frequencies, improves amplitude, phase and distortion performances. Use of 130 V for the preamplifier supply results in a significant increase in headroom. The Line Level system is fully compatible with standard symmetrical, transformer or transformerless microphone inputs (*Phantom power need not be disconnected*) and line inputs (balanced or single ended).

The 2812 is an extremely robust, low-noise power preamplifier and impedance converter with the ability to drive very long cables. The input signal to each of the two channels may be independently attenuated by 0, 6, or 12dB and channel separation is better than 90dB.



Output Levels of Type 2812. The values given are for balanced output mode of the 2812. For single-ended operation voltages should be divided by 2 and 6dB subtracted from dBV levels

The output of Type 2812 may be connected to transformer or transformerless microphone inputs, line inputs or directly to a tape recorder



Specifications

Frequency Range:

15 Hz to 200 kHz ± 0.5 dB

Dynamic Range: 1 μ V to 10 V (140 dB)

Input Attenuator: Switchable 0; -6; -12 dB

Maximum Input Voltage: 16; 32; 64 V peak

Input Impedance: 10 k Ω

Maximum Output Voltage: 32 V peak

Maximum DC Offset: ± 50 mV

Minimum Load Impedance: 200 Ω

Total Harmonic Distortion:

< -75 dB (20 Hz to 40 kHz)

Channel Cross-Talk:

< -90 dB (0 Hz to 20 kHz)

Equivalent Input Noise:

A-weighted: < 2 μ V

C-weighted: < 2.5 μ V

CCIR 468-1: < 10 μ V

Powering: 100 to 127 V and 200 to 250 V, 50 to 60 Hz AC mains supply. Maximum power consumption 14 VA

Operating Temperature Range:

-10 to +70 $^{\circ}$ C (+14 to +158 $^{\circ}$ F)

Weight: 1.75 kg (3.85 lb)

Dimensions:

200 $\times$ 126 $\times$ 46 mm (7.9 $\times$ 5.0 $\times$ 1.8 in)

Accessories Included:

Power Cable AN0020

Two 100 mA slow blow fuses VF0026