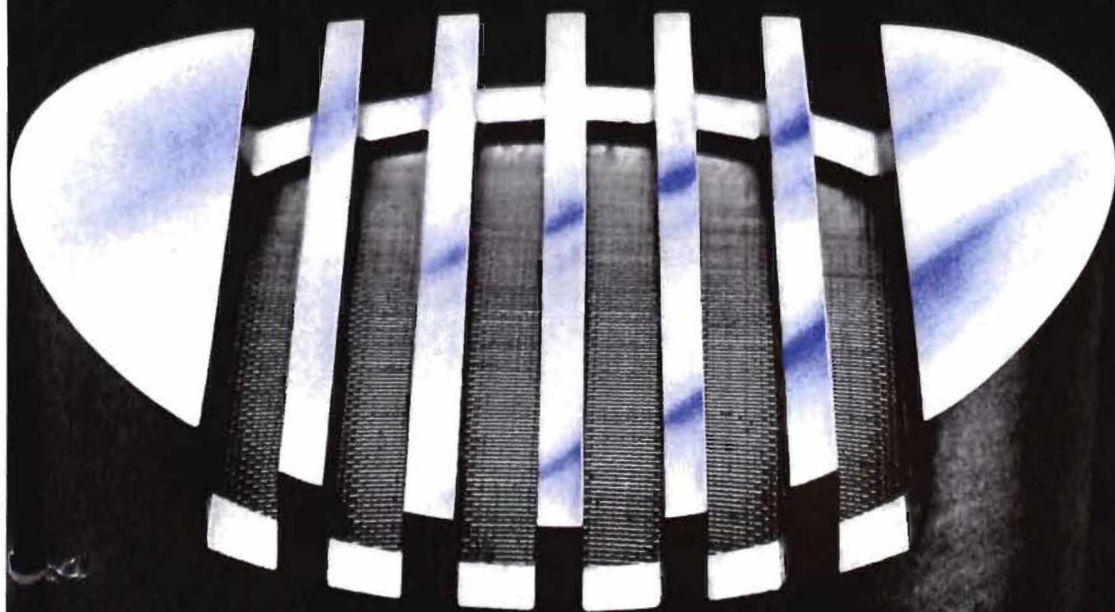


**FINALLY. CONDENSER MICROPHONES WITH
STUDIO PERFORMANCE. AND FIELD DURABILITY.**



SENNHEISER RF CONDENSER MICROPHONES.

The Condenser Dilemma Audio engineers have long known that condenser microphones provide the ultimate in wide frequency response, sensitivity and excellent transient response.

Until Sennheiser however, there have been certain practical drawbacks. Conventional condenser microphones are very sensitive to mechanical shock. Because of the high DC polarizing voltage, problems of high humidity or dielectric breakdown can frequently impair performance, especially at low frequencies (sometimes, even resulting in arc-over). Relatively bulky, cumbersome and inconvenient, they require outboard power supplies and impedance-matching transformers, or extremely short cables. Their generally larger diaphragms dictate larger housing dimensions. Moreover, the larger moving mass of conventional condenser diaphragms, is mechanically far more sensitive, requiring elaborate shock mounts.

Attempts to overcome these drawbacks have been only partially successful. While substituting FET transistors for vacuum tubes in conventional condenser designs has made the units more portable, the problems of critical amplifier input impedance and the likelihood of dielectric breakdown remains.

Electret microphones offer some advantages, by eliminating external DC bias. But the lower bias permanently "frozen" into the microphone capsule actually reduces the signal-to-noise ratio, impairing performance in critical applications.

The net result: while condenser microphones offer superior performance in high-quality recording and broadcast applications, their critical nature limits utility even in the studio. *And all but eliminates their ability to function in the field.* Until Sennheiser.

The Sennheiser Solution: The RF Condenser Principle

At Sennheiser, we have virtually re-invented the condenser microphone, by making the capacitive transducer part of an RF bridge. Without need for DC bias or high impedance.

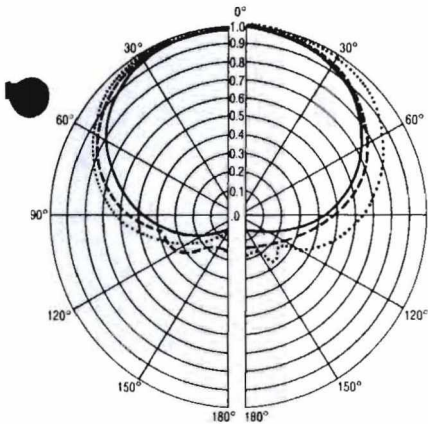
Because a small change in capacitance produces high output, the result is unparalleled sensitivity *and* high signal-to-noise ratio. Our RF capsule also tolerates high sound levels without overload, a quality especially apparent in our phantom-powered models.

Sennheiser's transformerless, low-impedance FM design also provides other benefits. Including RFI protection at the capsule. Immunity from hum pickup and interference by stray magnetic fields. Superior response with long cables. And *direct* connection to most equipment (bypassing transformer problems).

The inconvenience of complicated hook-up arrangements is also eliminated, with a choice of *three* powering systems: a compact, in-line battery supply or *two* external methods.

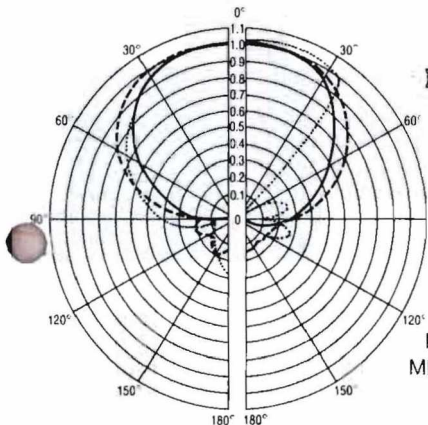
Sennheiser low-frequency response is exceptional. Operating on the same principle as data recorders, they are essentially capable of transducing frequencies of *less than 1 Hz* (!). While our scientific microphones function at these ultra-low frequencies, our Studio models must actually use ultra-low frequency *attenuation* to prevent overloading associated equipment.

Besides an inherent ruggedness and ability to withstand mechanical shock, Sennheiser microphones also have better vibration immunity than ordinary condenser units: smaller, lower-mass capsules in compact housings of sophisticated design, minimize vibrational effects so that shock mounts are often not needed. Smaller size also improves acoustical properties, particularly directionality. Finally, with no DC bias, the capsule is completely immune to arc-over or performance problems due to reduction of capsule isolation resistance.



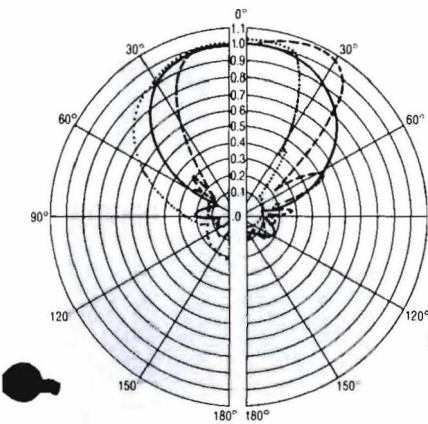
MKH 406 Utilizing a pressure gradient transducer system with a cardioid pattern, this model provides precise directionality over the entire response curve. Its excellent audio characteristics make it ideal for studio applications requiring a directional unit. Its ruggedly engineered construction, ability to withstand severe climates and freedom from handling noises make it perfect for most field applications as well.

MKH 406 T-U for AB powering
 MKH 406 P 48-U for phantom powering



MKH 416 Highly directional, this workhorse unit is a combination pressure gradient transducer and interference microphone. This gives it a cardioid pattern at low and medium frequencies, with a more directional club-shaped pattern at higher frequencies. The result is better isolation from wind and pop effects, as well as better immunity from breathing and clothing noises. Therefore, while it is basically a long-distance microphone designed to solve difficult problems, it is also highly favored by recording studios and performing soloists, as well as by reporters for those on-the-run sound gathering situations.

MKH 416 T-U for AB powering
 MKH 416 P 48-U for phantom powering



MKH 816 The ultradirectional microphone with the narrow-beam pattern that picks out speakers at great distances. A combination pressure-gradient and interference system, similar to, but more directional than the MKH 416, makes it highly impervious to extraneous noise pickup, so it is perfect for the difficult environment of the crowded news conference, as well as the more controlled conditions of the movie set or TV stage.

MKH 816 T-U for AB powering
 MKH 816 P 48-U for phantom powering

..... 250 Hz / 8 kHz _____ 500 Hz / 1 kHz
 - - - - - 2 kHz / 4 kHz

THE THIRD GENERATION.



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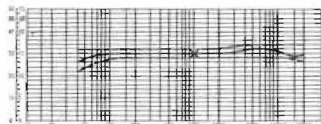
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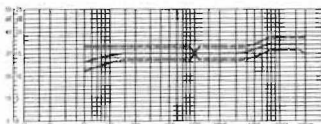
SPECIFICATIONS

	MKH 406 T-U	MKH 406 P 48-U	MKH 416 T-U	MKH 416 P 48-U	MKH 816 T-U	MKH 816 P 48-U
Frequency response	40 ... 20,000 Hz	40 ... 20,000 Hz	40 ... 20,000 Hz	40 ... 20,000 Hz	40 ... 20,000 Hz	40 ... 20,000 Hz
Directional characteristic	cardioid	cardioid	super-cardioid/ club	super-cardioid/ club	club	club
Open circuit output voltage at 1000 Hz and 94 dB SPL	20 mV	20 mV	20 mV	25 mV	40 mV	40 mV
Source impedance at 1000 Hz	2 ohms, balanced	10 ohms, balanced	2 ohms, balanced	10 ohms, balanced	2 ohms, balanced	10 ohms, balanced
Minimum recommended load impedance	600 ohms (200 ohms up to 120 dB SPL)	1 K ohms (200 ohms up to 123 dB SPL)	400 ohms (200 ohms up to 120 dB SPL)	400 ohms (200 ohms up to 124 dB SPL)	400 ohms (200 ohms up to 114 dB SPL)	600 ohms (200 ohms up to 117 dB SPL)
A weighted S/N ratio at 24 dB SPL (IEC 179)	76 dB	76 dB	76 dB	77 dB	76 dB	75 dB
Volume handling capability	124 dB SPL	131 dB SPL	124 dB SPL	128 dB SPL	118 dB SPL	124 dB SPL
Supply voltage	12 V \pm 2 V	48 V \pm 12 V	12 V \pm 2 V	48 V \pm 12 V	12 V \pm 2 V	48 V \pm 12 V
Current drawn	6 mA	2 mA	6 mA	2 mA	6 mA	2 mA
Temperature range	-10°C to +70°C	-10°C to +70°C	-10°C to +70°C	-10°C to +70°C	-10°C to +70°C	-10°C to +70°C
Output connector	3-pin XLR	3-pin XLR	3-pin XLR	3-pin XLR	3-pin XLR	3-pin XLR
Dimensions in mm	3/4" dia., x 6.5" lg.	3/4" dia., x 6.5" lg.	3/4" dia., x 10" lg.	3/4" dia., x 10" lg.	3/4" dia., x 22" lg.	3/4" dia., x 22" lg.
Weight	5.3 oz.	5.3 oz.	6 oz.	6 oz.	13 oz.	13 oz.

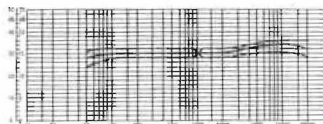
We reserve the right to alter specifications, in particular with regard to technical improvements.



MKH 406



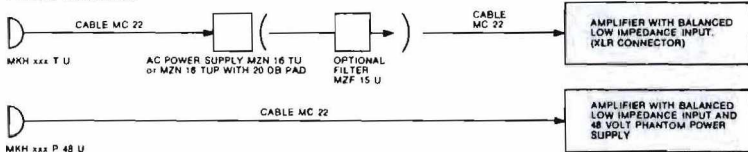
MKH 416



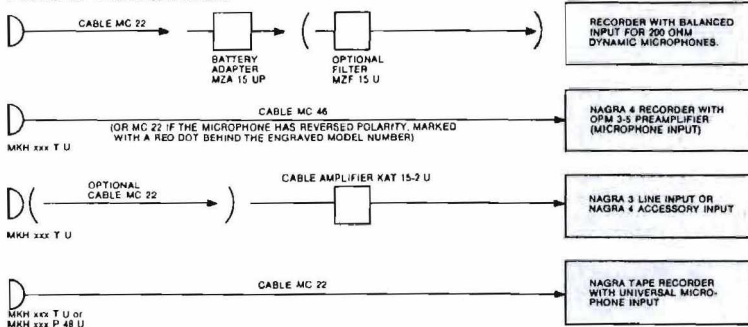
MKH 816

INTERCONNECTION DIAGRAMS FOR MKH CONDENSER MICROPHONES

1 STUDIO INSTALLATION



2 CONNECTION TO PORTABLE RECORDERS



SENNHEISER

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Printed in West Germany