




Neumann fet 80 Condenser Microphones

G O T H A M 

Neumann fet 80 Condenser Mic



KM 83/84/85



KM 86



KM 88

U 89

These three microphones all have identical electronics sections, permitting the capsules to be readily field interchanged. The KM 84's cardioid capsule provides a significant breakthrough in cardioid capsule design and is justifiably called the "Linear Admittance" capsule. It displays unprecedented linearity of response not only for on axis impinging sound, but also over an off-axis angle of some $\pm 135^\circ$. This permits sound sources located far off axis to be picked up without coloration, and in large enclosures provides for a total sound field reproduction without the all too common bass-boost quality. The KM 83 omnidirectional pressure transducer is useful for extremely close voice pick-up, due to its insensitivity to popping and its lack of proximity effect bass rise. The KM 85 is a cardioid like the KM 84, but with a gradual low frequency roll-off, which reaches about -12 dB at 50 Hz, built into the capsule itself. It is most suitable for sound reinforcement applications. A -10 dB overload protection switch is provided on all of these microphones.

This microphone consists of two KM 84 capsules mounted back-to-back within its screen head assembly, however the subjective quality it achieves is surprisingly different from that of the KM 84, due to the size and shape of that screen enclosure. The use of two capsules provides directional pattern switchability: omni, cardioid, figure-8. A -10 dB overload protection switch is provided. The KM 86 is especially noteworthy for its linear low frequency response for all three directional patterns, even at a great distance from the sound source. The microphone, therefore, finds its greatest application in the medium and distant pick-up of instrument sections. It is not recommended for close up use. Its small size makes it ideal as an orchestra microphone in television.

Although it is a dual membrane, three-pattern switchable microphone (omni, cardioid, figure-8), the KM 88 is notably small in its outside dimensions. The capsule's dual membranes are made of nickel, the only such used on any fet 80* microphones, and give the KM 88 its characteristic crisp, brilliant sound. Its axis of maximum sensitivity is at right angles to the microphone body. Many studios find this the ideal microphone for string pick-up. The -10 dB overload switch is recessed and thereby protected against inadvertent operation.

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Microphones for 48 V Phantom Powering



U 89



U 87



U 47 fet

USM 69
(SM 69 I
QM 69)

A new microphone model from the ground up! Similar *only* in looks to, but about 20% smaller than the U 87, equipped with a completely new capsule (the right one pictured on our cover), and an electronics package containing eleven transistors vs the two in the U 87. And yet it most definitely is *not* in any sense a successor to, or replacement for the U 87, which continues its preeminent position in the industry. The capsule is unique in that all of its exposed surfaces are at ground potential, making it highly unlikely that the usual combination of dirt and humidity will cause capsule failure. Two new directional characteristics—hyper-cardioid and wide-angle cardioid—make the U 89 the most versatile studio unit available today. Its maximum SPL capability of 134 dB (140 dB with overload switch) and low-frequency roll off selectable to a boundary frequency of 80 Hz or 160 Hz, add even more flexibility.

Although similar in appearance to the U 87, it will likely be used more often in medium distance pick-up applications, concert halls and those places where previously the tube equipped M 49 model reigned supreme.

The model U 87 is the best known and most widely used of the fet 80* series. Its dual membrane capsule (the left one pictured on the cover of this brochure) uses evaporated gold on polyester film which has proven to be the most heat and aging resistant material. Three switches are provided beneath the capsule itself: for selecting the three directional patterns, frequency response and sensitivity. Its high frequency response is practically linear even in its cardioid and figure-8 positions even close-up. The response below 40 Hz is purposely rolled off to prevent low frequency blocking. This roll-off may be switched to 200 Hz to allow compensation for the bass rise common to all good directional microphones when used at close range. The U 87 is specifically designed for close miking studio applications. No microphone in Neumann's history has had as long and distinguished a career as the U 87. The venerable, tube equipped U 47 was manufactured for only 12 years, while the U 87's twentieth anniversary is already history! An enviable track record.

The U 47 fet continues the tradition of the world famous Model U 47, built from 1947-1960, which rightfully is credited with revolutionizing the world's recording and broadcasting industries. Its exterior strongly resembles its predecessor, but its technical properties represent the state-of-the-art today. It is protected against wind and pop interference; its capsule is elastically mounted to isolate it against mechanical shock disturbances; it features both a 10 dB overload protection switch at the input of its internal electronics and a 6 dB switchable output pad to permit matching to highly sensitive microphone input circuits. A low-frequency roll-off of 12 dB at 50 Hz is provided by a third switch. The result is a versatile unit which will take most microphone applications in stride. The dual membrane capsule is a pressure-gradient transducer with cardioid characteristic.

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USM 69
(SM 69 fet/
QM 69)



KMS 84



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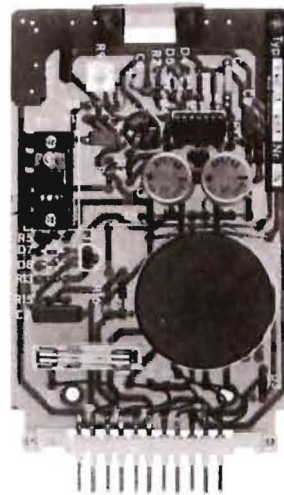
Neumann manufactures two similarly shaped microphones for stereo recording, one for quadrasonic. The SM 69fet and the new USM 69 (pictured). The USM 69's electronics have been upgraded and it may simply be plugged directly into any two phantom powered outlets. These stereo microphones consist of two completely separate and independent microphone capsule systems mounted one above the other. The upper element may be rotated 270° with respect to the fixed lower one. This enables the user to apply the various intensity stereo recording techniques—such as M-S or X-Y—without the danger of arrival time (phase) differences between the systems. It is the only method which guarantees mono compatibility, while providing unprecedented three-dimensional localizability. Both microphone systems may be switched to nine different directional patterns, the SM 69fet from its NS 69 ac supply or CU 48 phantom powered controller; the USM 69 on the microphone itself.

The QM 69 is a quadrasonic unit, featuring four, 90° spaced, cardioids with four separate electronics in a single envelope.

A microphone for vocal and instrumental soloists must meet special performance criteria. It must be insensitive to explosive sounds ("popping"), must handle enormous sound pressure levels, and may not reproduce finger noise from handling in hand-held applications. The KMS 84 was specifically developed for this use. A multi-stage acoustical filter in front of its capsule combined with an extremely linear operational amplifier prevent overloading caused by the sub-audio parts of sibilants and speech explosives. All this is accomplished without in any way detracting from the traditional brightness typical of condenser microphones. The wire mesh grille is easily unscrewed and is available in red, yellow, green, blue, dark matte and satin finish to allow ready identification when used in sound reinforcement. GOTHAM also sells extremely supple microphone cable in these same, and some additional colors.

NEUMANN is certainly not the first to enter the shot-gun field—but it is the best! Great advancement in the design of such microphones have given the KMR 82 the most frequency independent directional pattern of any shot-gun microphone available today. The result is a low-frequency directional pattern that is virtually as narrow as the high—something never before achieved. Add to that the low, 12 dB equivalent loudness level, its relatively short 15 1/4" (395 mm) length, its light 250 g weight, its low 0.7 mA power consumption, and its convenient accessories, and you have a major break-through in ultra-directional microphone design. A 120 Hz low-end roll-off and a high frequency reducing switch for close-up work are provided. A most convenient and unique accessory is the battery powered handle which obviates any need for outside powering. The KMR 82 is normally supplied in dark matte color.

The N 80G DUAL POWER SUPPLY is a small, compact and economical way to power one or two fet 80* microphones. Simply plug it into an ac outlet, insert one or both of the Switchcraft XLR adapters into microphone inputs, the cable from the microphones into the adapters, and that's all that's necessary. Of course for fixed installations, it's preferable to have your microphone outlets centrally powered. In such cases the model N 80G5 may be wired into small consoles of up to five inputs.



The N 448 CENTRAL PHANTOM SUPPLY CARD may be hidden in your console, rack, or main frame and will supply up to one hundred fet 80* microphones with power. This supply may actually be connected to any number of outlets in any number of locations, as long as you don't plug in more than 100 microphones at a time. You may connect two supplies in parallel, and obtain back-up protection.



The KMA LAVALIER MICROPHONE is a high sensitivity, frequency compensated lapel unit which is powered either by the BS 18 battery supply (shown) or the SWA phantom powering adapter. Special mounts are available to mount the KMA to a violin or cello for extremely close pick-up. It is available only in unobtrusive dark matte color.



The MA "Fishpole" consists of five telescoping fiberglass sections, which extend to 12 ft 4 in and retract to a compact 4 ft length. The 16 oz weight is remarkable and helps fight operator fatigue. An elastic suspension at the head end accommodates any KM series microphone, including the KMR B2 "shot gun". Accessories include a battery supply holder and a swivel clamp to permit the MA to be used as a far reaching boom mounted atop any microphone stand.

The KM 83/4/5 Miniature Microphones may have their capsules located at a distance from the amplifier using the KV straight and curved extension tubes, available in lengths from 8" to 24". They are ideally suited to use on speakers' rostrums, in churches, for TV interviews and conference tables; any situation in which unobtrusiveness is a must.



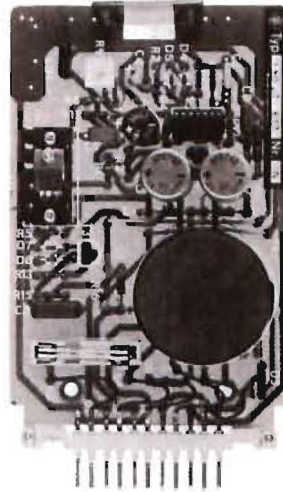
WIND AND POP SCREENS are available for all Neumann studio microphones. Some are meant to be on the microphone at all times when such units are used for close talking or singing, while others are in use only outdoors or in environments where air currents, such as air conditioning system anemostats produce low frequency interference. The overall response and directional characteristics of the microphones is virtually unaffected by their use.



MISCELLANEOUS ACCESSORIES:

Neumann provides a large number of excellent accessories for its microphones. Elastic suspensions, wind and pop screens, auditorium cable hangers, intensity stereo mounts and matrixing transformers, twin mike mounts and many more. A complete catalog of these accessories is available.

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Specifications

Type	KM83	KM84 KM85	KM86	KM88	U 89	U 87	U 47 fet	USM 69	SM 69fet	KMS 84	KMR 82	KMA
Directional patterns	○	⊂	⊂⊂	⊂⊂	⊂⊂⊂	⊂⊂	⊂	⊂⊂⊂⊂	remote contr.	⊂	⊂	○
Acoustic operating principle	pressure transducer	pressure gradient transducer										pressure transducer
Frequency range	40-20,000 Hz	40-20,000 Hz	40-20,000 Hz	40-16,000 Hz	40-18,000 Hz	40-16,000 Hz	40-16,000 Hz	40-16,000 Hz	40-16,000 Hz	40-16,000 Hz	40-20,000 Hz	40-16,000 Hz
Eff. output level ref 1 Pa ¹	41 dBm	38 dBm 39 dBm	38 dBm	42 dBm	40 dBm	40 dBm	39 dBm	38 dBm	32 dBm	44 dBm	31 dBm	5mV open circuit
Source impedance	150 ohms/bal.	150 ohms/bal.	150 ohms/bal.	150 ohms/bal.	150	150	150	150	150	150	150 ohms/bal.	800 ohms/unibal.
Equivalent loudness level due to inherent noise (IEC 179)	20 dB-A	17 dB-A 18 dB-A	19 dB-A	19 dB-A	17 dB-A	18 dB-A	18 dB-A	13 dB-A	13 dB-A	18 dB-A	12 dB-A	24 dB-A
S/N ratio (A weighted) re 1 Pa at 1 kHz	74 dB	77 dB 76 dB-A	75 dB	75 dB	77 dB	76 dB	76 dB	81 dB-A	81 dB	78 dB	82 dB	70 dB
Max. SPL for less than 0.5% THD ²	133 dB	133 dB	133 dB	134 dB	134 dB	132 dB	137 dB	133 dB	123 dB	138 dB	128 dB	113 dB
Total dynamic range of the microphone amplifier ³	113 dB	116 dB 115 dB	114 dB	115 dB	117 dB	114 dB	119 dB	120 dB	110 dB	120 dB	116 dB	89 dB
Power supply +48 ±4 Vdc	0.4 mA	0.4 mA	0.4 mA	0.45 mA	0.8 mA	0.4 mA	0.5 mA	2 x 0.7 mA	0.8 mA	0.5 mA	0.7 mA	+16 to -24 Vdc 0.33 mA
Weight	80 g	80 g	210 g	130 g	400 g	500 g	710 g	510 mm	465 mm	210 g	250 g	30 g
Dimensions: dia length	21 mm 110 mm	21 mm 110 mm	21.47 mm 185 mm	21 mm 170 mm	46 mm 185 mm	56 mm 200 mm	63 mm 160/219 mm	30.48 mm 292.5 mm	30.48 mm 260 mm	21.40 mm 177 mm	21 mm 395 mm	33 x 18 x 15 mm l · w · h

¹ 1 Pa = 94 dB SPL = 10 dyne/cm²

² THD of the microphone amplifier when an input level equivalent to the capsule output at the specified SPL is applied.

³ Referred to IEC 179 weighted equivalent loudness level.

CORRECTIONS:	U 89	U 47 fet	KMS 84
S/N ratio (A weighted) re 1 Pa at 1 kHz			76dB
Max. SPL for less than 0.5% THD ²	140dB	147dB	
Total dynamic range of the microphone amplifier ³	123dB	129dB	

**We are pleased to enclose the new
NEUMANN fet 80 CONDENSER MICROPHONE CATALOG #125.**

NEUMANN began making condenser microphones in 1928. They were introduced to the United States in 1948 with the advent of the Long Playing record. This combination was responsible for the dramatic improvement in sound we now call "High Fidelity". **NEUMANN** microphones continue to maintain their pre-eminent position in the world of professional audio.

Over the years, new condenser microphone models have been developed to meet the increasingly diversified requirements of this industry. Although all **NEUMANN** microphones are identical in acoustical quality, each has its specific applications.

For those of you who think **NEUMANN** microphones are beyond your budget, consider this: *23 years ago the NEUMANN U 67 sold for \$390. Today that same microphone sells on the used market for upwards of \$1,000! Obviously you don't buy NEUMANN microphones, you invest in them. In the long run, this fact makes them the least expensive microphones you can buy.*

If you have any questions regarding the application of **NEUMANN** microphones to your task, please call us. We know!

NEW YORK: 212/765-3410
WEST COAST: 818/785-2211
NORTHEAST: 508/745-8522

Encl.: GN 125
PL 2

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Thank you for your enquiry. Here is a brief summary of our product lines.

Audio Designs Ltd.

PRODAT recorders and sound maestro editing systems;

Audio Developments Ltd.

Portable mixers for ENG, recording "field fix-it" boxes, all battery powered;

EMT-Franz GmbH

Digital reverbs, DDL, turntables, CD players, noise filters, broadcast limiters and mixing consoles;

GOTHAM Cable

3 and 4 conductor shielded mike cable (spools and pre-made w. XLRs.);

Harmonia Mundi Acustica GmbH

Digital audio signal processing, interfacing, sampling frequency conversion, equalization and mixing;

Klein & Hummel

Self-powered, tri-amplified studio monitor loudspeakers;

LaRue Systems

SMPTE time code event controller;

NTP Elektronik A/S

Peak program meters, stereo phase meters, audio switching systems;

Georg Neumann GmbH

Condenser microphones for studio, TV and film, DMM CD and analog disk mastering systems, modular consoles and components;

Studer Revox America, Inc.

Professional tape recorders, SMPTE time code, pilotone and FM pilot, CD players, cassette decks, telephone hybrids;

TimeLine

Lynx SMPTE synchronizer modules and system controller;

Troisi

EDC Analog signal processing modules, meters and consoles.

GOTHAM is in the business of distributing the world's finest professional audio equipment. We have over a quarter of a century of experience. Call us first when you need advice about audio.

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