MICROTECH GEFELL

microphones & acoustic systems - founded 1928 by Georg Neumann

KEM 975

Cardioid Plane Microphone

with non-rotation-symmetrical polar pattern

- Line array condenser microphone system
- Recording of extensive or moving sound sources
- Optical display for optimum recording area
- Latency-free analogue signal processing
- Transformer-balanced output, line level

Optional with delta capsule

- Frequency-constant directivity index

Cardioid Plane Microphone KEM 975

The cardioid plane microphone KEM 975 is a line array microphone system with a largely frequency-independent polar pattern, which shows - in the horizontal plane - the feature of a cardioid microphone and - in the vertical plane - the feature of a directional microphone with an opening angle of approx. 30 degrees. Thus, the polar pattern is adapted to the frequent case that the sound source to be transmitted is extended in a level or moves in it, and sound coming from the other directions is to be suppressed at the same time. The sound to be suppressed may consist of disturbing noise or reflections which come from ceiling surfaces, table surfaces or floor areas. Due to its directional characteristics, the KEM 975 can be used for recording sound sources that are very extensive in width and depth or moving sound sources. Since the complete signal processing is analogue, there are no signal delays.

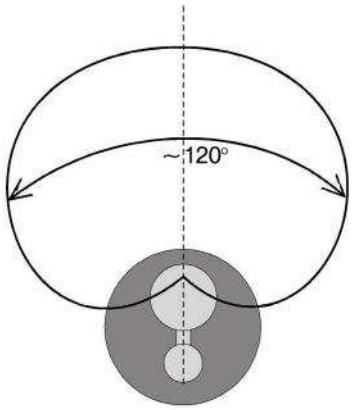
Delta capsule

Below approx. 800 Hz, the KEM 975 cannot maintain its clubbed directivity in the vertical plane anymore due to its given line length and approaches a cardioid polar pattern more and more with lowering frequency. With a process developed and patented by the Institut für Rundfunktechnik (Institute for Broadcasting Technology), the directivity and the directionality are increased in this frequency range using the optionally pluggable delta capsule which forms an equilateral triangle together with the two external capsules of the KEM 975. Thus, a frequency-constant directivity index is realised across the entire transmission range down to below 100 Hz. The result is a better spatial separation of sound sources with low-frequency signal portions and a more consistent spaciousness in the recorded signal over the frequency. This is particularly advantageous for music recordings. If the KEM 975 is used for video conferences or as a speaker's microphone on the speaker's desk, it can also be used in the familiar appearance without delta capsule.

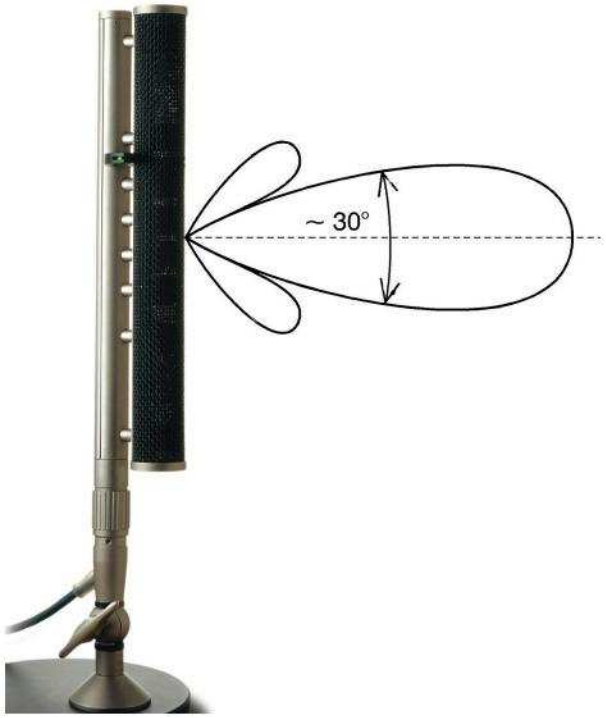
The KEM 975 was developed in collaboration with the Institut für Rundfunktechnik in Munich.

Institut für Rundfunktechnik

Acoustic properties



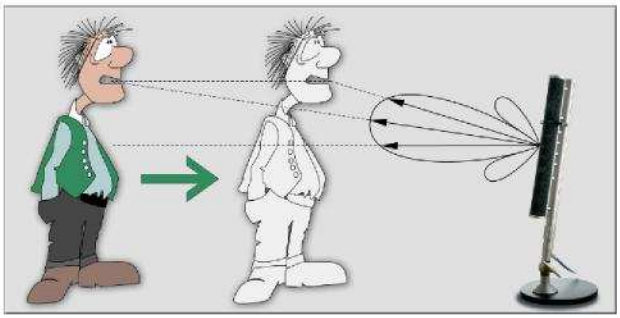
The KEM 975 has a directional distribution of sensitivity, which is not rotationally symmetric to the reference axis. The designation "*cardioid plane microphone"* results from this special directional distribution (flat cardioid). Regarding the polar pattern, the KEM 975 shows - in the horizontal plane - the features of a cardioid microphone with an opening angle of 120 degrees and - in the vertical plane - the feature of a directional microphone with an opening angle of 30 degrees. Due to a signal processing adjusted to the capsule position, the vertical opening angle remains constant above approx. 800 Hz over frequency.



The high directional selectivity of the microphone requires knowledge of the directions of incidence of useful sound and disturbing noise. The more carefully the KEM 975 is adjusted accordingly, the better the achieved results. The optimum adjustment is facilitated by an LED position indicator, which can be switched off and is attached inside the protective cage.

Eight small-membrane condenser capsules of the M 300/ M 21 series with a gold-plated polyester membrane are used as sound transducer. The amplitude-frequency response of the KEM 975 shows an increase of 2 dB between 2 kHz and 12 kHz to increase the voice and high-frequency presence.

The delta capsule, which can be plugged to the KEM 975 as an option, effects an increase of the directivity and directionality in the frequency range below approx. 800 Hz whereby the directivity index of the KEM 975 with plugged delta capsule has an almost constant frequency of 9dB even with lowering frequency down to below 100 Hz. The delta capsule is automatically recognised by the KEM 975 and the signal processing is adjusted accordingly. Even if a delta capsule is plugged, the complete signal processing remains analogue and thus latency-free.



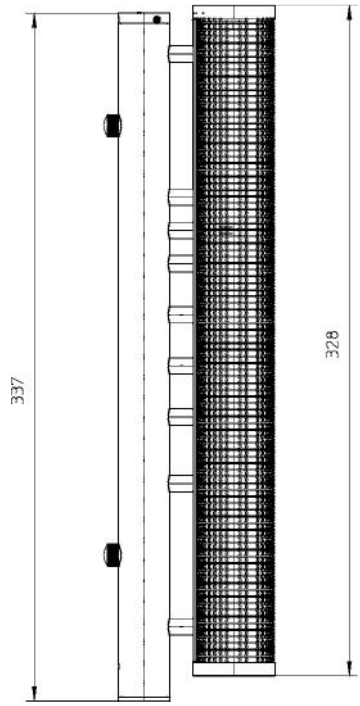
If the KEM 975 is installed and aligned accordingly, its sensitivity is reduced in case of a distance reduction of the sound source. The sound source with the largest distance is in the range of maximum sensitivity. The closer a sound source is to the microphone, the more the range of the highest sensitivity is left. In this way, the level increase caused by approaching the sound source is compensated. With the position and setting angle of the microphone, the intensity of this compensation can be varied.

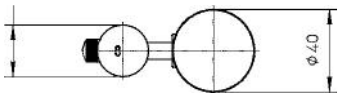
Electrical properties

The circuit design of the KEM 975 includes a particularly low-noise impedance converter technology which is specifically designed for the used capsules and their line array arrangement. With five amplification levels that can be adjusted on the power supply, it allows for a very large dynamic range for sound pressure levels up to 152 dB at a distortion factor of a maximum of 0.5 %. In combination with the equivalent noise level of 15 dB(A), the low-noise transmission of low sound pressures and the distortion-free representation of very high sound pressures are thus possible.

The connection between microphone and power supply unit is made by means of a five-pin XLR connection cable. Using this cable, the audio signal transmission and the power supply are realised. At the power supply unit, the audio signal is output using a transformer-balanced three-pin XLR male connector, whose ground connection can be interrupted by means of a switch attached to the rear side of the N 975 in order to eliminate ground loops.

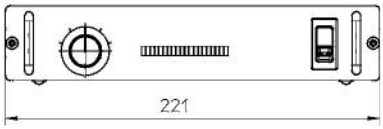
A rubber connector with earthing contact is used for connecting the N975 to the mains power supply. The supply voltage can be set to 230 V or 115 V.



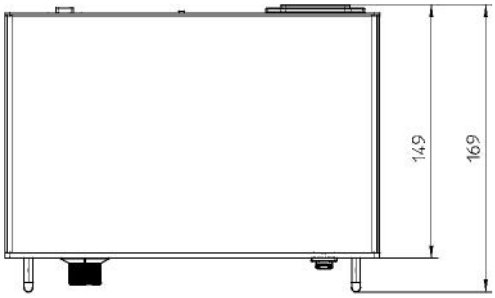


Mechanical properties

The eight capsules of the line array microphone system KEM 975 are installed in a protective cage housing with a length of 328 mm and a diameter of 40 mm. The amplifier housing arranged behind, in which the electronic system and the plug connector of the KEM 975 are located, has a length of 337 mm and a diameter of 25 mm. The weight of the KEM 975 is 1.07 kg without holder or mounting bracket.



The power supply unit N975 has a half-19-inch housing with a height of 1 RU and a depth of 149 mm without control elements or 169 mm with control elements. It can be both set up as tabletop device and installed - with the supplied rack mounting kit - in standard racks with a width of half-19 inches or 19 inches. The weight of the N 975 is 1.6kg without rack mounting kit.



Product overview

Delivery

The KEM 975 will be delivered in the following variations:

Cardioid Plane Microphone	KEM 975	
Power supply	N 975	
Microphone holder	MH 975	
Microphone cable	C 975.1	
Power cable		
Rack installation kit		
Aluminium Suitcase 450 x160 x 365 mm		
satin nickel		Order-No. 211180
dark bronze		Order-No. 211181
Option: Delta-capsule		
satin nickel		Order-No. 201246
dark bronze		Order-No. 201247

Accessories

For the KEM 975 the following accessories is optionally available:

Windscreen	W 975	Order-No. 202420
Microphone holder	MH 975	
satin nickel		Order-No. 202371
dark bronze		Order-No. 202372
Microphone holder	KH 975.03	
for elastic-stationary fixing		
satin nickel		Order-No. 202374
dark bronze		Order-No. 202375
Microphone holder	KH 975.1	
for elastic-stationary fixing		
satin nickel		Order-No. 202376
dark bronze		Order-No. 202377
Connection cable, Neutrik, 5-pin, 10 m	C 975.1	Order-No. 202224
Connection cable, Neutrik, 5-pin, 20 m	C 975.2	Order-No. 202225
Connection cable, Neutrik, 5-pin, 30 m	C 975.3	Order-No. 202226
Connection cable	C 975.1 W	
with swivel mount, Neutrik, 5-pin, 10 m		Order-No. 202227

Technical specifications

Cardioid Plane Microphone

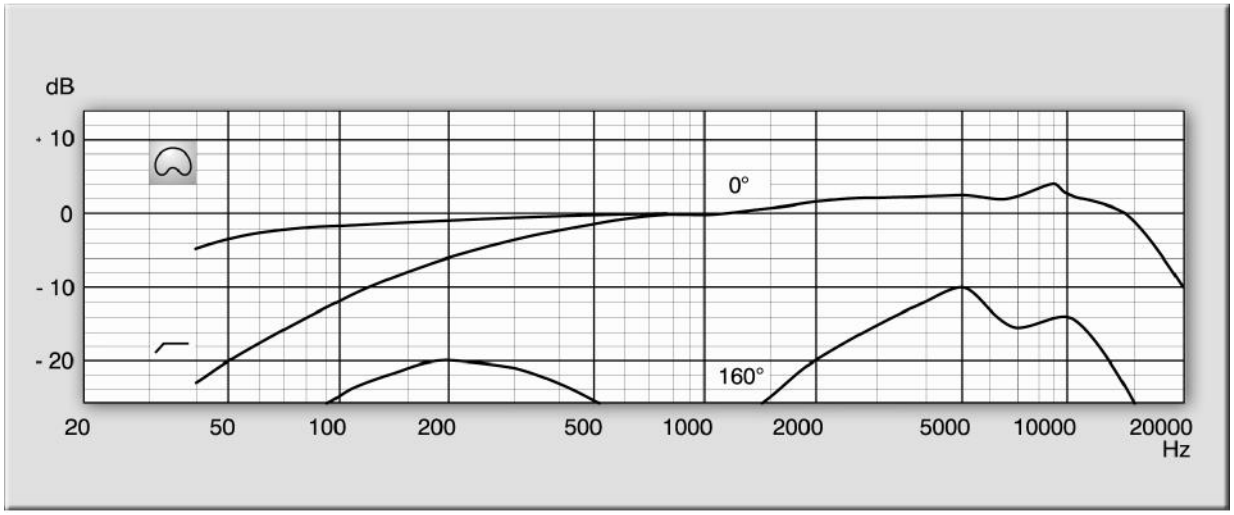
Polar pattern	horizontal vertical	cardioid club shaped
Recording angle	horizontal vertical	120 degree 30 degree
Acoustic operating principle		Pressure gradient transducer
Frequency range		40 to 18000 Hz
Sensitivity at 1 kHz (switch position “line”)		775 mV/Pa
Rated impedance		40 Ohm
Equivalent loudness level	CCIR 468-4 DIN EN 60268-4	24 dB 15 dB(A)
SPL for THD 0,5%	gain 12 dB gain 0 dB gain -12 dB gain -24 dB gain -36 dB	104 dB 116 dB 128 dB 140 dB 152 dB
Connection		Neutrik XLR5M
Weight		1,07 kg
Lengths		343 mm
Diameter	protection basket amplifier	40 mm 25 mm
Surface		satin nickel dark bronze

Power supply N 975

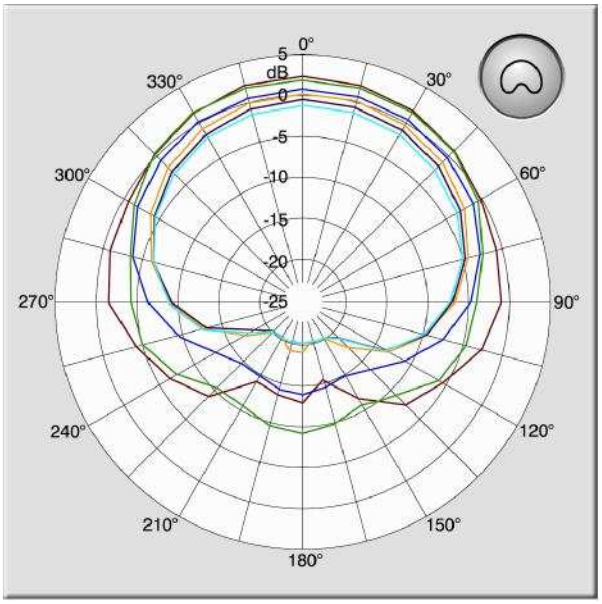
Power supply voltage		230/ 115VAC ±10%, 50/60 Hz
Connection	KEM 975 audio signal	XLR5F XLR3M
Weight		1,6 kg
Width		221 mm
Depth		169 mm
Height		45 mm

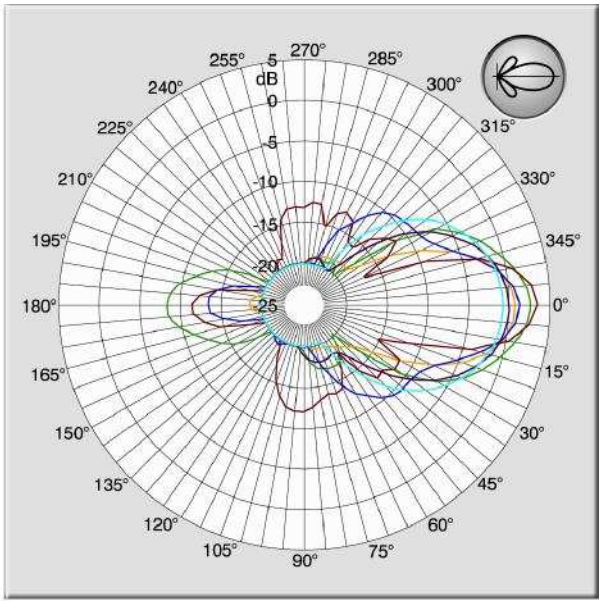
Technical specifications

Frequency response



Polar patterns





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