MICROTECH GEFELL

microphones & acoustic systems - founded 1928 by Georg Neumann

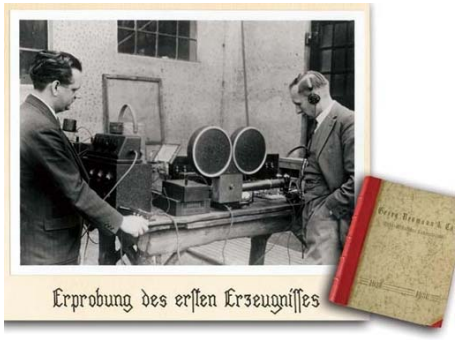
2014. Microphones. all in all



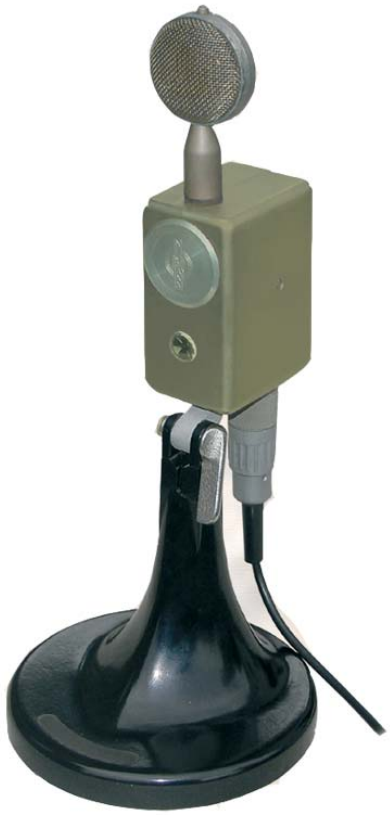



The Tradition. so far – so good

1928 Georg Neumann and Erich Rickmann establish the limited partnership Georg Neumann & Co. The idea behind this new company lies in manufacturing microphones following the capacitive transducer concept. An aim they manage to achieve for the first time in serial production with the condenser microphone CMV 3.



1933 participation at the „Große Deutsche Funkausstellung" leads to a massive rise of sales within Germany and of exports.
During this time, representations are set up in England, France, the USA and India.



1936 the Olympic Games in Berlin provide the first live test for the classic M 7 electrode in a tube set-up as developed by Georg Neumann. It is still manufactured to this day.
The so-called „Neumann bottle" can already be equipped with different capsules in order to change patterns. The path that the company has chosen since its founding proves to be the right one. Extensive practical experience leads to a continuous improvement of products.

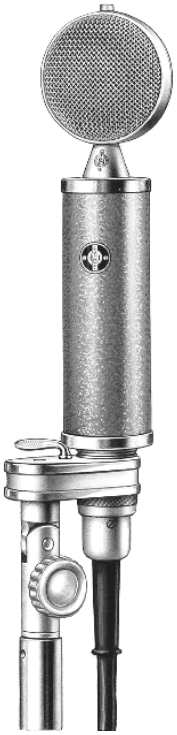
1943 during the Second World War, the principal laboratory on Michaelkirchstraße in Berlin undergoes damage both by fire and bombs. To avoid further bombings, the entire company and the principal laboratory are transferred to Gefell.

1945/46 Germany is divided into four sectors after the surrender. Thuringia, initially occupied by the Americans is exchanged for a part of Berlin (Potsdam Treaty) and handed over to the Soviet Union, which changes the situation in Gefell completely.

1946 employees returning from Gefell establish a small workshop in Berlin (West) mainly for repair of microphones. This workshop becomes Georg Neumann GmbH, the second Neumann company, now owned by Sennheiser.

1950 New condenser measurement microphones are developed and become part of the serial production.

1956 the centralist regime of the GDR forces private companies to accept state co-ownership. Like thousands of other companies, Georg Neumann & Co. becomes a so-called BSB („Betrieb mit staatlicher Beteiligung" – company under state participation).



During the **1950**s, radio stations in Berlin are rebuilt and production in Gefell continues, both of the known microphone types and of new ones:Tube microphone preamplifier CMV 563 With the microphone capsules M 55 (omni), M 7 (cardioid), M 8 (figure eight) and M 9 (omni) as well as M 7 S, M 8 S and M 9 S with short handles Tube condenser microphone UM 57, switchable patterns, omni-cardioid-figure eight

1961 the building of the Berlin Wall sets a seal on the division of the city. The socialist GDR also cuts off all communication that has existed to this point between Georg Neumann & Co. in Gefell and Georg Neumann GmbH in Berlin.

During the three decades from the **1960s** to the **1980s**, production in the studio sector is mainly carried out according to the demands of radio applications. In close cooperation with „Rundfunk und Fernsehtechnisches Zentralamt RFZ" (central radio and television council) the following microphones are developed and produced until 1989: ZUM 64, M582, MV690, MV691, MV692, PM750 and PM860.

1972 the limited partnership Georg Neumann & Co. in Gefell is expropriated and renamed VEB Mikrofontechnik Gefell. Further use of the Neumann trademark is prohibited by the GDR. Instead, products are now marked with the brand RFT.

1989 the Berlin Wall comes down. The Treuhandanstalt takes charge of the company in Gefell with the aim of reprivatising it. The expropriated limited partnership Georg Neumann & Co. files for restitution of its company.

1993 the company Microtech Gefell GmbH is returned to the limited partnership Georg Neumann & Co.– now Georg Neumann KG. After more than twenty years of state imposed the company now produces under the new registered trademark.

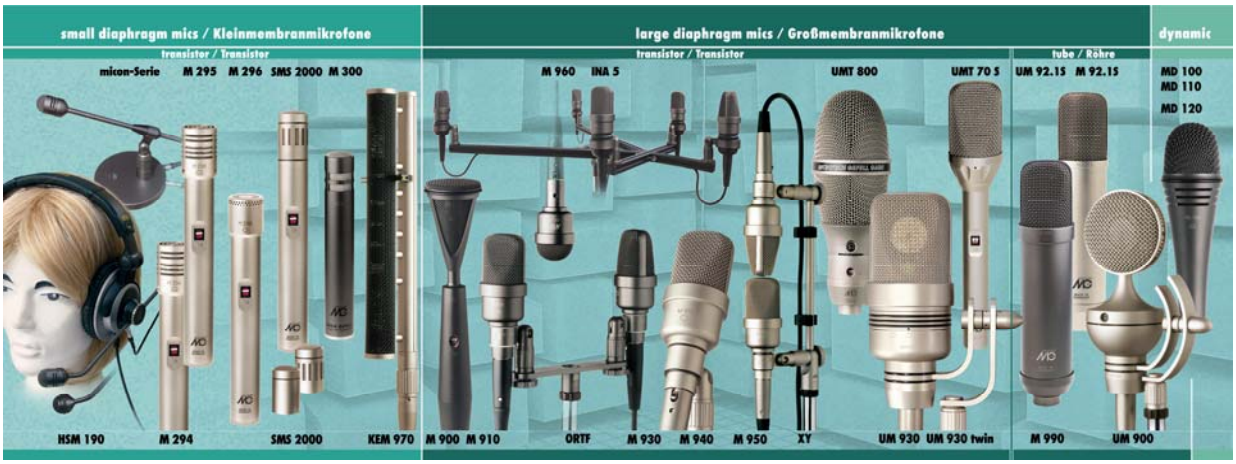
The Business. microphones & acoustic systems

Microtech Gefell designs, manufactures and supplies microphones and acoustic systems. A customer oriented approach is practiced to achieve the optimal usability of our products in their daily use. The products themselves should be regarded as special tools having particular properties appropriate for their intended applications, and perform at the highest quality level. Every single product is assembled entirely by hand by our specialists, then tested and calibrated. The experience amassed is applied to ensure that product quality is maintained or bettered. A complete company approach results in the acoustics, electronic and mechanical development, design, product management, production, marketing and sales, as well as technical service and support, all coming together under one roof in Gefell. Even the complete manufacturing process is, as far as possible, carried out in-house, and ranges from fabricating the membranes, the microphone capsules and the electronic circuitry right through to the housings and virtually every mechanical piece-part. A dedicated team at our headquarters in Gefell takes care of sales and customer support, and a global network of distribution and sales partners provide their customers with the best possible connection to our company. Microtech Gefell products have earned a worldwide reputation amongst professional users as precise and reliable tools in fields spanning from acoustic measurement, recording studios and radio and television, to mobile sound reinforcement and fixed installations in parliaments and conference venues.

The Support. before – while – after

A product possessing the highest level of quality is not always sufficient in itself to ensure an optimum outcome in every situation. The function of a microphone in a proposed acoustic environment must often be considered in conjunction with the electrical and mechanical parameters pertaining, as well as the layout and operation of complex installations. To achieve this, and to guarantee the best benefits possible to the user, Microtech Gefell provides not only a comprehensive range of accessories, but also extensive pre-sales technical assistance and excellent after-sales support. This includes customer and application-specific custom designed products, expert technical guidance, planning for test facilities, measurement installations and audio systems, design of room acoustics for studio and presentation theatres, as well as measurement and calibration services at the location. Tools used for these services also include computer room simulations, for example to ensure optimum relationships between microphones and loudspeakers in relation to the relevant sound sources and listeners. The service department at Microtech Gefell is constantly on hand should a fault occur, or servicing or calibration is required. All the company's microphones, including the older models, will be repaired or restored using original parts. Older power supply versions can be modified to 48V phantom powering, and previous connector types can be replaced with the modern XLR types. All this guarantees the user that, besides owning a top quality product, their valued investment is safeguarded.

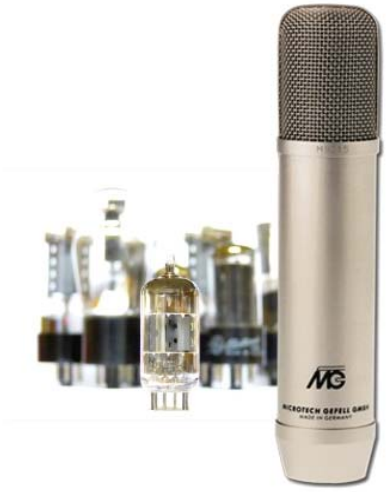
The Microphones. all in all



The products and services portfolio of Microtech Gefell encompasses not only microphones for audio recording, but also measurement technology, works calibration, application-specific system solutions and custom manufacture in the areas of acoustics, electronics and mechanics, as well as service and repair. The microphones set out in this overview belong to application-specific sectors in *Broadcast & Recording* as well as *Live-Sound & Installation*. The *Broadcast & Recording* sector covers microphones which are especially developed for use in the studio, in particular for the recording of instruments, speech and singing. Here there is a sound-specific choice between large diaphragm microphones with tube technology – or small membrane microphones that work exclusively with transistor technology. In the *Live-Sound & Installation* sector, microphones employed are of the type most often integrated with Live-show sound, or in fixed electro-acoustic installations. In these cases, to meet the requirements, there is a choice of microphones including hand-held, instrument, table or ceiling microphones as well as headset microphones. Hence, a specifically suitable microphone is to be found for nearly every purpose, but suitable also for various other types of application in general.

- Products
  - Microphones
    - Broadcast & Recording
      - 
      - Large Membrane Tube Microphones
      - Large Membrane Transistor Microphones
      - Small Membrane Transistor Microphones
    - Livesound & Installation
      - 
      - Handheld Microphones
      - Instrument Microphones
      - Table- and Ceiling Microphones
      - Headset Microphones
  - Measurement Equipment
  - Factory Calibration
  - System Solutions
  - Special Manufacturing
  - Service / Repair

Large Membrane – Tube Microphones. classic

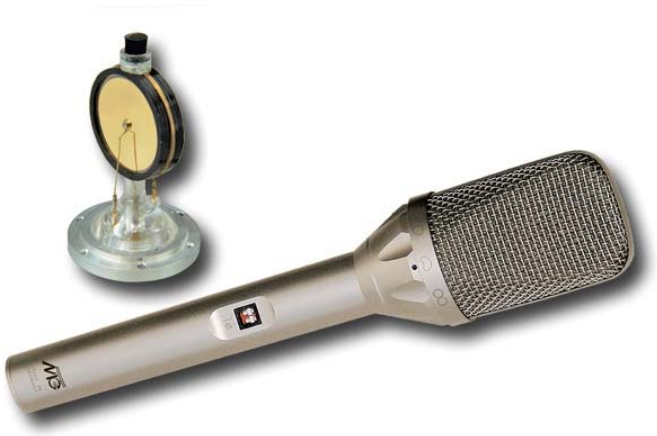


As one of the first condenser microphone variants, the Large Membrane Tube microphone is a positive classic for sound recording. Many highly treasured recordings have been made with this type of microphone, making use of its subjectively pleasing properties. The non-linear curved response characteristics create distortions at the microphone output that, because of their frequency characteristics, lead to a rounded overall sound with distinct bass properties and a velvety sounding high frequency range free from edginess. A further advantage is the pleasant sound in the upper overload region resulting from a gradual onset of overload limiting. And last but not least, valves by a gift of nature are ideally suited as impedance convertors, since the vacuum in their interior presents an extremely high input impedance.

	M 92.1 S	UM 92.1 S
Capsule system	M 7, Pressure gradient	M 7, Dual membrane, Pressure gradient
Polar patterns	cardioid,	omni, cardioid, fig-8
Frequency range / Hz	40 … 18000	40 … 18000
Sensitivity / mV/Pa	19	15
Equivalent loudness level / dB(A)	15	17
Max. SPL (0,5%) / dB	118	120
Power Supply	N 920.1	UN 920.1

	M 990	UM 900
Capsule system	Pressure gradient	M 7, Dual membrane, Pressure gradient
Polar patterns	cardioid,	omni, widec., cardioid, hyperc., fig-8
Frequency range / Hz	40 … 18000	40 … 18000
Sensitivity / mV/Pa	28	25
Equivalent loudness level / dB(A)	13	16
Max. SPL (0,5%) / dB	119	130
Power Supply	N 920.1	P 48 / XLR

Large Membrane – Transistor Microphones. standard

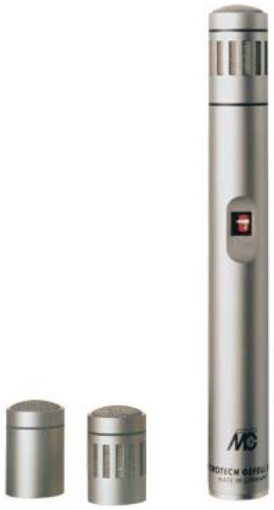


From a technical point of view, the large membrane transistor microphone represents a further development of the large membrane tube microphone. The use of semiconductors in combination with transformerless circuitry results in extremely high maximum output levels with negligible distortion, and a noise performance approaching the limits of physics. The combination of the tonal characteristics of the large diaphragm capsule, and the compact physical size, this microphone type has established itself as the standard for recording in the general studio business. It enables both transmission of minute, precise detail at low level and reproduction with minimal distortion at very high sound pressure levels. Also, the particularly compact types lend themselves particularly well for use as main microphones in stereo and surround recording applications.

	M 930|M 940|M 950	M 930 Ts	M 960	UM 930 | UM 930 twin
Capsule system	M 930, Pressure gradient	M 930 Pressure gradient	M 930, Pressure	M 930, Dual capsule Pressure gradient
Polar patterns	cardioid | hyperc. |widec.	cardioid	omni	omni, widec., cardioid, hyperc., fig-8
Frequency range / Hz	40 … 18000	40 … 18000	20 … 20000	40 … 18000
Sensitivity / mV/Pa	21 | 23 | 20	23	16	20
Equivalent loudness level / dB(A)	7 | 6 | 7	7	9	7
Max. SPL (0,5%) / dB	142 | 141 | 142	142	145	142
Power Supply	P 48 / XLR	P 48 / XLR	P 48 / XLR	P 48 / XLR | 5 pol. XLR

	M 1030	MT 71 S	UMT 70 S	UMT 800
Capsule system	M 930, Pressure gradient	M 7, Pressure gradient	M 7, Dual membrane, Pressure gradient	M 7, Dual membrane, Pressure gradient
Polar patterns	cardioid	cardioid,	omni , cardioid , fig-8	omni, widec., cardioid, hyperc., fig-8
Frequency range / Hz	40 … 18000	40 … 18000	40 … 18000	40 … 18000
Sensitivity / mV/Pa	21	13	7 , 13 , 8	8
Equivalent loudness level / dB(A)	7	14	14	14
Max. SPL (0,5%) / dB	142	144	149 , 144 , 149	149
Power Supply	P 48 / XLR	P 48 / XLR	P 48 / XLR	P 48 / XLR

Small Membrane –Transistor Microphones. versatilely

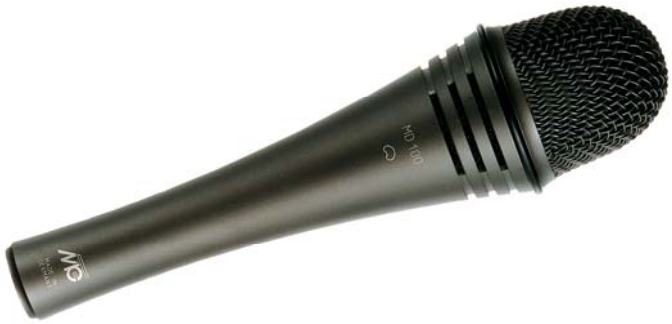


The physically small dimensions of small membrane transistor microphones lend themselves particularly well to applications where minimum impact on the sound field is desired. They benefit from low self-noise and exceptionally low distortion at high output levels, allowing extremely close proximity to very loud instruments. Small membrane capsules are made from synthetic materials, or extremely thin metal that, in combination with a pressure gradient capsule, results in an exceptional transient response. The small physical size of these microphones is well suited to the formation of multi-channel microphone arrays for stereo and surround recording , and allows their positioning anywhere where an optically unobtrusive microphone is needed. And finally, modular construction can offers excellent flexibility by the use of interchangeable capsule systems, and preamplifiers.

	M 300 | M 310	M 200 | M 210 | M 270	M 221
Capsule system	M 930, Pressure gradient	M20 | M21 | M27 Pressure gradient |Pressure	MK 221, Pressure
Polar patterns	cardioid | hyperc.	cardioid | hyperc. | omni	omni
Frequency range / Hz	40 … 18000	40 … 18000	20 … 20000
Sensitivity / mV/Pa	12 | 17	13 | 13 | 10	50
Equivalent loudness level / dB(A)	16 | 13	14 | 14 | 18	15
Max. SPL (0,5%) / dB	147	145 | 145 | 148	136
Power Supply	P 48 / XLR	P 48 / XLR	P 48 / XLR

	M 294 | M 295	M 297	M 296
Capsule system	Pressure gradient	Pressure gradient	Pressure
Polar patterns	cardioid	widecardioid	omni
Frequency range / Hz	40 … 18000	40 … 18000	20 … 20000
Sensitivity / mV/Pa	17	15	15
Equivalent loudness level / dB(A)	13	15	14
Max. SPL (0,5%) / dB	143	143	144
Power Supply	P 48 / XLR	P 48 / XLR	P 48 / XLR

Handheld Microphones. static and dynamic



Handheld microphones combine their purpose of capturing vocals and instrumental solos on stage, with recording studio quality performance levels. In line with their use, they are optimised for close mixing use in respect of their frequency response, low frequency characteristics and high sound pressure levels. A level frequency amplitude response, and a constant frequency directional pattern combine to produce high immunity against feedback during operation with sound reinforcement installations. The integrated acoustic filter in the protection grill serves to significantly reduce the effects of wind and popping, and the elastic capsule suspension system minimises handling noise. Various directional patterns serve both for selectively specific capture of desired sound sources, and to minimise pick up of undesired noise sources. There is a choice between electrostatic condenser microphones, and electrodynamic moving coil microphones, which can be used statically on a microphone stand, or dynamically in the hand.

	M 900 | M 910	PM 860
Capsule system	Pressure gradient	Pressure gradient
Polar patterns	cardioid | hypercardioid	cardioid
Frequency range / Hz	40 … 18000	30 … 20000
Sensitivity / mV/Pa	17 | 14	13
Equivalent loudness level / dB(A)	13 | 15	16
Max. SPL (0,5%) / dB	143 | 145	132
Power Supply	P 48 / XLR	P 48 / XLR

	MD 100 | MD 110	MD 120
Capsule system	Pressure gradient	Pressure
Polar patterns	cardioid | hypercardioid	omni
Frequency range / Hz	50 … 16000	50 … 18000
Sensitivity / mV/Pa	1,6 | 1,5	1,5
Equivalent loudness level / dB(A)	-	-
Max. SPL (0,5%) / dB	-	-
Power Supply	XLR	XLR

Table and Ceiling Microphones. on top and below

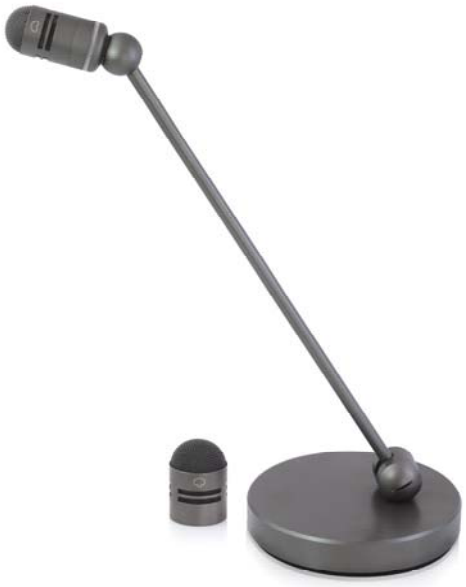
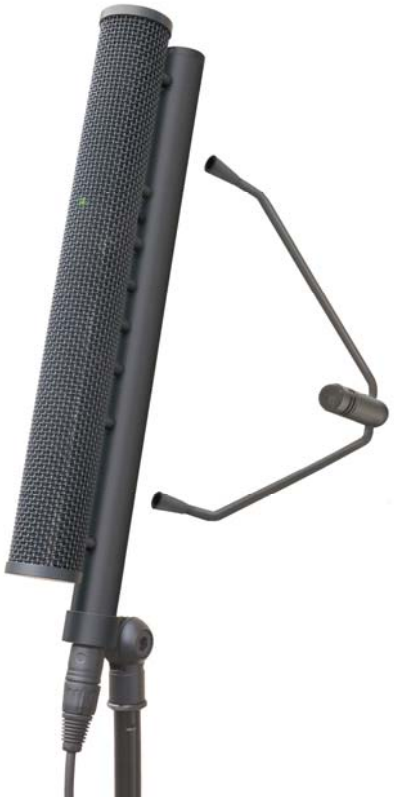


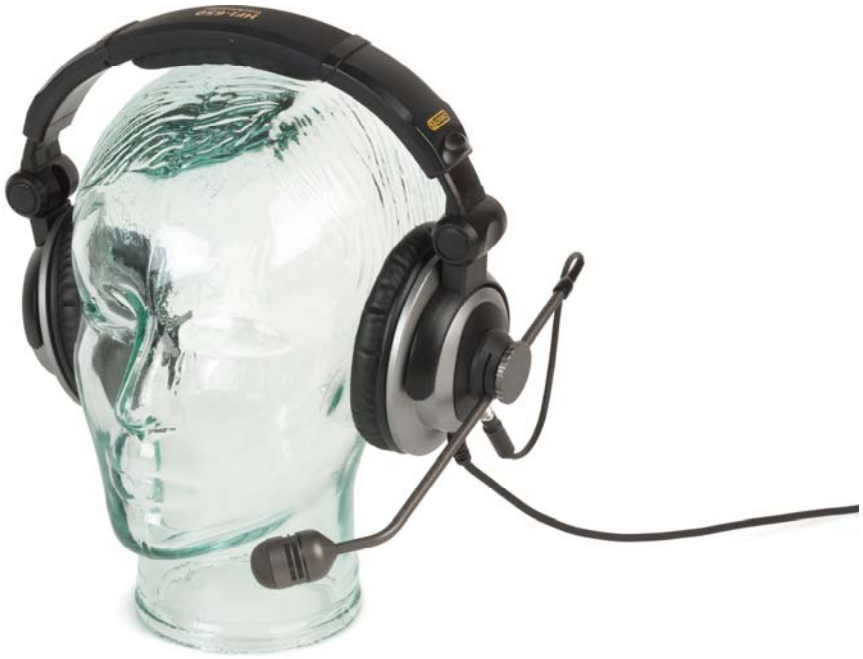
Table and ceiling mounting microphones with their unobtrusive type of construction and compact capsule dimensions, are visually quite discreet in positioning. The profile of the table microphone is principally designed for placement on conference desks or lecterns which, by their combination of fixed mounting pillars and adjustable linkages allow secure positioning and precise alignment to be set. The Cardioid Plane microphone is a special product in this application field, with its non-symmetrical rotational directional characteristic, which allows an extremely high degree of freedom of movement in the horizontal plane for the presenter, whilst exhibiting exceptionally good suppression of undesired noise sources in the vertical plane. The frequency response of table and ceiling microphones is optimised for neutral character of the voice. And last but not least, useful features such as ready and signalling functions, low current consumption for phantom powered types, as well as the possibility to work with cable lengths up to 100 m for problem-free integration in practically every conference type installation.

	TMV 325	TM 190.2
Capsule system	M30 | M31 Pressure gradient	Pressure gradient
Polar patterns	cardioid | hyperc.	cardioid
Frequency range / Hz	40 … 18000	40 … 16000
Sensitivity / mV/Pa	12 | 15	14
Equivalent loudness level / dB(A)	16 | 15	15
Max. SPL (0,5%) / dB	145 | 146	146
Power Supply	P 48 / XLR	P 48 / XLR

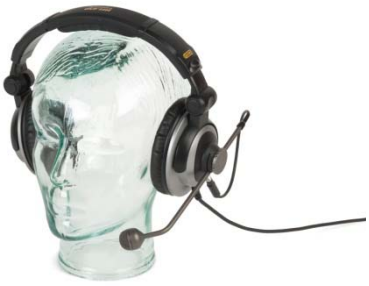


	BM 190	BM 180	KEM 975
Capsule system	Pressure gradient	Pressure	8x Pressure gradient
Polar patterns	cardioid	omni	cardioid horizontal vertical club shaped
Frequency range / Hz	40 … 16000	40 … 18000	40 … 18000
Sensitivity / mV/Pa	14	7	775
Equivalent loudness level / dB(A)	15	20	11
Max. SPL (0,5%) / dB	146	147	152
Power Supply	P 48 / XLR	P 48 / XLR	N 975

Headsets. personally

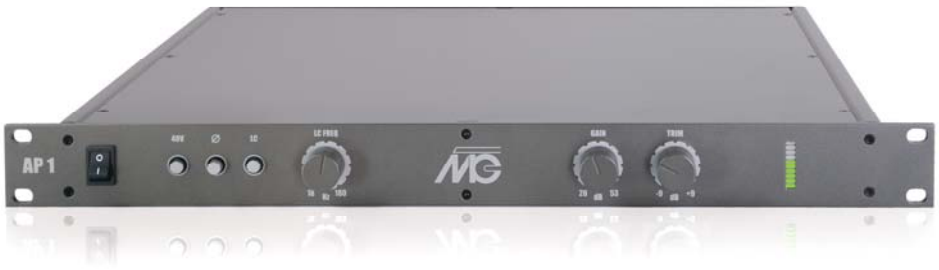


Headset microphones, because of their close proximity to the mouth, achieve a particularly high signal to noise ratio in environmental noise. Together with the headphones, they create a system ideal for use as a presenter microphone for radio and television commentators, translation and other similar applications. The stabile fixing of the microphone, together with its secure adjustable fitting, permits accurate and repeatable positioning of the microphone in all three axes. By opting for pressure or pressure-gradient versions, an application-appropriate variation between position-independent sound character and environmental noise can be selected. The frequency response of the microphone capsule is optimised for a natural sound character for the typical headset-mounted distance and indirect angle of address configuration. And finally, one hears a lot of good things about the headphones used with the headset microphones.



	HSM 190	HSM 180
Capsule system	Pressure gradient	Pressure
Polar patterns	cardioid	omni
Frequency range / Hz	40 … 18000	40 … 18000
Sensitivity / mV/Pa	14	7
Equivalent loudness level / dB(A)	15	20
Max. SPL (0,5%) / dB	146	147
Power Supply	P 48 / XLR	P 48 / XLR

Preamplifier



The AP 1 is an one-channel microphone amplifier with an extreme low-noise circuit design, a wide dynamic range and very linear transmission properties. With the amplifier the precise transmission of low signal levels is possible as well as the distortion-free transmission of high signal levels. It is ideally suited for the use with condenser microphones in large diaphragm transistor construction which have an extreme low noise level and a very high headroom. Recommended applications are recordings of speech, vocals or acoustical instruments. The intuitive and uncomplicated handling of the amplifier guarantees the user an absolutely concentration on the recording.

	Microphone Amplifier AP 1
Frequency range (±0,1 dB)	20 Hz bis 50000 Hz
Noise level A-weighted	-127,4 dBu
Microphone supply	P48 acc. to IEC 61938, switchable
Highpass filter, switchable	adjustable from 18 Hz to 220 Hz
Phase rotation	switchable
Microphone input	1x XLR3F
Line output	2x XLR3M, electronic symmetrical
Maximum input level	15 dBu
Maximum output level	28 dBu

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