

## **KM 100**

**Miniature Microphone  
System**





## Features

- Miniature microphones with 7 exchangeable capsules
- Active capsules, detachable up to 50 m from the output stage
- Great variability through capsule extensions and goosenecks
- Switchable 10 dB pre-attenuation
- Set includes windshield and two different clamps
- Transformerless circuitry
- Extensive accessories

The variable condenser miniature microphone system consists of several active microphone capsules with different directional characteristics, an output stage, and numerous accessories.

Currently there are seven active capsules available: omni diffuse-field equalized, omni free-field equalized, cardioid, wide-angle cardioid, cardioid with bass roll-off, hypercardioid, and figure-8.

Through the modular construction of mic capsules and the output stage it is very easy to adapt the system to a wide range of applications. The mic becomes nearly invisible during work with cameras (film, video), on stage, or suspended from the ceiling in a concert hall.

An active capsule can also be screwed directly onto the output stage. The result is a compact miniature microphone.



## Construction

The microphones are only 92 or 110 mm resp. long and 22 mm in diameter. They consist of the condenser capsule and the output stage. Both parts can be unscrewed from each other. The system offers several condenser capsules with different directional characteristics.

Numerous accessories can be mounted between the capsules and the output stage. The capsules attach to cables, capsule extensions, swivel mounts, table stands, goosenecks, stereo mounts, and hangers. Therefore, it is very easy to adapt the system to a wide range of applications.

The active capsule itself is only 35 or 47 mm resp. long. The KM 100 output stage and the active microphone capsule may be separated by up to 50 m of interconnecting cable. These cables are 3 mm in diameter, and therefore very inconspicuous.



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### Acoustic features

**AK 20** is a pressure gradient transducer with the figure-8 characteristic, realized with a single diaphragm. The diaphragm diameter is just 16 mm. All sound field components reach the diaphragm directly. This results in identical frequency response curves and output levels at 0° and 180° sound incidence. Corresponding accessories allow combining the AK 20 with other active capsules or microphones to obtain an MS-Stereo setup.

**AK 30** is a diffuse-field equalized pressure transducer with a flat frequency response up to 10 kHz (in the diffuse field). In the free sound field this microphone has a boost of approximately 7 dB at 10 kHz.

**AK 31** is a free-field equalized pressure transducer with a flat frequency response up to 20 kHz (in the free field). In the diffuse sound field this microphone has a high frequency roll-off above 5 kHz.

**AK 40** is a pressure gradient transducer with cardioid characteristic. The frequency curves are very smooth and match 0° sound incidence. Sound from sources within a pickup angle of  $\pm 135^\circ$  is reproduced without any coloration.

**AK 43** is a pressure gradient transducer with wide-angle cardioid characteristic. Attenuation at 90° is 4 dB, at 135° it is 8 dB and at 180° it is 11 dB. The frequency response curves for sound sources within an angle of  $\pm 90^\circ$  are parallel up to 12 kHz.

**AK 45** is a pressure gradient transducer with cardioid characteristic, similar to the AK 40. However, it has an acoustic bass roll-off that is useful during applications when subsonic and low frequencies may cause difficulties. The AK 45 is optimized for a flat low frequency response at a recording distance of 15 cm ("speech cardioid").

**AK 50** is a pressure gradient transducer with hypercardioid characteristic. Attenuation of sound incidence from the side or rear is about 10 dB, with minimum sensitivity at an angle of 120°.





## Electrical features

The KM 100 is phantom powered (48 V) and uses transformerless output circuitry. This has several advantages. It features high output capability and extremely low self noise. It provides exceptionally clean sound, free of any coloration. As with traditional transformers, this circuit approach ensures good common mode rejection. The balanced output signal is protected against interference.

The construction is extremely compact. The entire microphone circuitry is on a single hybrid module measuring only 2 cm<sup>2</sup> in area. It is built into the microphone capsule, therefore the term “active capsules”.

All sensitive components are protected within the capsule. As a result, the quality of the audio signal is never compromised through the use of accessories, for example, when the capsule is detached from the output stage and mounted on a cable or a gooseneck.



Even with a long cable between active capsule and output stage, the signal is immune to external interference.

## Preattenuation

The output stage has a 10 dB switch. Attenuation is achieved by reducing the capsule voltage to one third.

When the switch is on, the microphone is capable of accepting sound pressure levels up to 150 dB without being overloaded.



## Connectors

To diminish the number of connectors within the KM 100 System some accessories were modified. They can now be screwed directly onto the KM 100 output stage without using the KA 100 cable adapter. The new accessories which include the cable adapter, were renamed adding the suffix KA. For example: LC 3 is now LC 3 KA.

The separate KA 100 cable, needed for older accessories, will be available also in future.

The KM 100 output stage has a 3-pin XLR connector.

## Sound diffraction sphere

The SBK 130 sound diffraction sphere slips onto the front of the KM 130/KM 131 pressure microphones. The diaphragm becomes an integral part of the surface of the sphere. This affects the frequency response of the microphones.

While sounds coming from the front-half space are emphasized by up to 2.5 dB between 2 kHz and 10 kHz, sounds arriving from the rear-half space are attenuated by a maximum of 2.5 dB in the range above 5 kHz.

Since the sound diffraction sphere causes the pressure buildup of the KM 130/KM 131 pressure microphones to begin earlier, the frequency response rises smoothly in the middle and upper range. This is similar to a typical pressure gradient microphone, where the directivity increases with rising frequencies. However, since the KM 130/KM 131 are pressure microphones, they maintain a linear sensitivity down to the lowest frequencies.

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This changing directivity allows to record at a greater distance from the sound source, and makes the KM 130/KM 131 microphones especially suited as stereo main microphones in A-B configurations.

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### **KM 100 F Output stage**

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The KM 100 F output stage is an alternative to the KM 100 output stage. In contrast to the KM 100 output stage with a flat frequency response, the KM 100 F attenuates frequencies below 80 Hz at 6 dB/octave. This eliminates or suppresses interference caused by wind or structure-borne noise.

A built-in slide switch allows to raise the cut-off frequency (-3 dB point) from 80 Hz to 120 Hz. An additional slide switch lowers the sensitivity by 10 dB.

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### **Stereo recordings**

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By means of the AC 30 adapter cable two active capsules, AK 20 and e.g. AK 40 can be connected as MS stereo pair directly with the MTX 191 (A) matrix amplifier. The XY or MS signal is then available at the 5-pin XLR output connector of the MTX 191 (A), and the recording angle can be electrically remote controlled. The output stages KM 100 are then not required.

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### **Stereo set**

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The cardioid and hypercardioid microphones are also available as complete stereo sets, SKM 140 and SKM 150, including all accessories in a single jeweler's box.



A further SKM 100-MS Stereo Set containing the microphones KM 120 and KM 140 is available.



**Current:**



KM 100 Output stage



KA 100 Cable adapter



LC 3 Microphone cable

**New:**



KM 100 Output stage



LC 3 KA Microphone cable

**Accessories\***



AK 20, Active capsule  
Catalog No.: 08416



AK 30, Active capsule  
Catalog No.: 07057



AK 31, Active capsule  
Catalog No.: 07063



AK 40, Active capsule  
Catalog No.: 07045



AK 43, Active capsule  
Catalog No.: 07117



AK 45, Active capsule  
Catalog No.: 07074



AK 50, Active capsule  
Catalog No.: 07081



SBK 130, Sound diffraction sphere  
for dia. 22 mm, Catalog No.: 07371



KM 100, Output stage  
Catalog No.: 07395



KM 100 F, Output stage  
Catalog No.: 07376



KA 100, Cable adapter  
Catalog No.: 07330



N 48 i-2, Power supply  
230 V: Catalog No.: 06500  
117 V: Catalog No.: 06502  
without plug-in mains unit:  
Catalog No.: 06504



BS 48 i, Battery supply  
Catalog No.: 06494



BS 48 i-2, Battery supply  
Catalog No.: 06496



DS 100, Double swivel mount  
(for KVF ... extension tubes)  
Catalog No.: 07318



SG 100, Swivel mount (for KVF ...)  
Catalog No.: 06688



KVF 118 KA, Capsule extension  
(with gooseneck, 300 mm)  
Catalog No.: 08410



KVF 158 KA, Capsule extension  
(with gooseneck, 700 mm)  
Catalog No.: 08411



KVF 148 KA, Capsule extension  
(with double gooseneck, 700 mm)  
Catalog No.: 08412

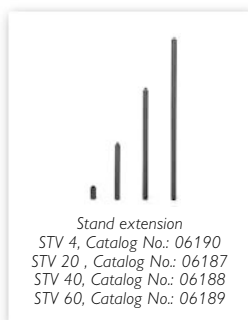


MKV, Quick release clamp  
Catalog No.: 07199

\*) Detailed descriptions of all accessories are contained in the accessories catalog.

# KM 100

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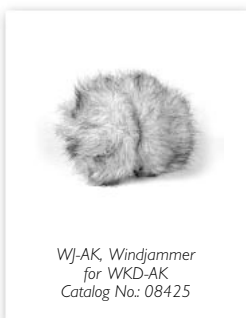


\*) Detailed descriptions of all accessories are contained in the accessories catalog.

## Accessories



## Special Accessories for AK 20 and Stereo-Applications





# KM 100

## Miniature Microphone System

### Application Hints

For recording situations where the microphone must remain "invisible".

#### KM 120

- MS-Stereo microphone, as a combination of the AK 20 with the AK 40 cardioid capsule or another AK ...
- Two crossed AK 20s in Blumlein technique
- Inconspicuous spot microphone with optimum attenuation of lateral sound sources
- Single microphone for two speakers facing each other

#### KM 130

- Ideal as AB stereo pair in the diffuse sound field because of the flat frequency response
- As a main mic, especially for capturing room acoustics
- For stereo recordings with a baffle plate
- As a spot mic for piano, wind instruments, organ, and choir

#### KM 131

- For close miking of instruments when there is no need to attenuate extraneous noise, and in a balanced acoustic environment to record acoustic guitar, wind instruments, strings, percussion, and drums
- Flat frequency response for close miking, spot mic

#### KM 140

- Universal usage, especially in situations when it is necessary to attenuate sound coming from adjacent instruments
- As XY and ORTF stereo pair
- Announcer's mic for broadcasting
- Spot mic, overhead
- Close miking of strings, wind instruments, percussion, piano, Leslie speakers, guitar amps
- We recommend using an additional windscreen to minimize the effects of high wind velocity

#### KM 143

- Polar response characteristic acts more like an omni. Therefore, it is an ideal tool to record larger instrument ensembles
- As AB stereo pair, especially in rooms with less than ideal acoustics
- As spot mic for strings, wind instruments, percussion, and Leslie speakers
- Acts very neutral when used close up to bass instruments, such as double bass, bass amps, guitar amps

#### KM 145

- It naturally compensates for proximity effect
- Very neutral tonal balance during close miking of speech, as in TV, movie and video, PA
- Acts very neutral when used close up to bass instruments, such as double bass, bass amps, guitar amps, Leslie speakers, toms

#### KM 150

- As XY stereo pair
- Overhead, toms
- In situations that are susceptible to acoustic feedback
- To attenuate unwanted sound of nearby instruments
- Recording of speech, as in TV, movie and video productions, PA systems
- Produces especially warm and bass supporting sound for artists who perform in proximity effect range
- We recommend using an additional windscreen to minimize the effects of high wind velocity, and plosive sounds

These are just some of the most common applications. We recommend additional experimentation to gain maximum use from this microphone.

### Delivery Range KM ...

Microphone KM 120 ... KM 150  
Windscreen WNS 100 or WNS 120  
Stand mount swivel SG 21/17 mt  
Wooden box

### Delivery Range SKM 140 (150)

2 Microphones KM 140 (150)  
2 Connecting cables LC 3 KA  
1 Stereo mount STH 100  
Wooden box

### Delivery Range SKM 100-MS

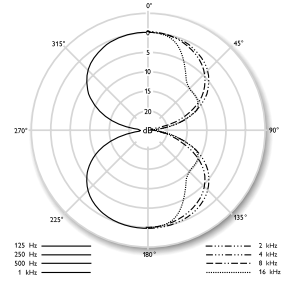
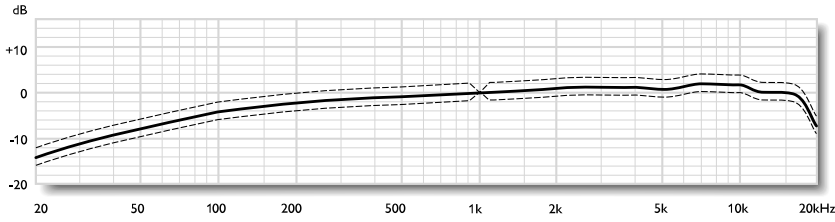
1 Microphone each KM 120 and KM 140  
2 Connecting cables LC 3 KA  
1 Stereo mount STH 120, Wooden box

### Catalog No.

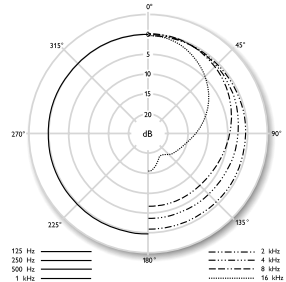
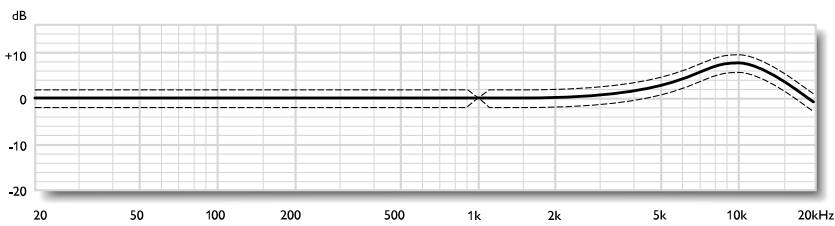
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KM 130	..... blk	..... 07051
KM 131	..... blk	..... 07061
KM 140	..... blk	..... 07031
KM 143	..... blk	..... 07109
KM 145	..... blk	..... 07068
KM 150	..... blk	..... 07077
SKM 140	..... blk	..... 07094
SKM 150	..... blk	..... 07099
SKM 100-MS	..... blk	..... 08421



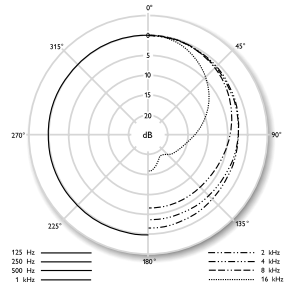
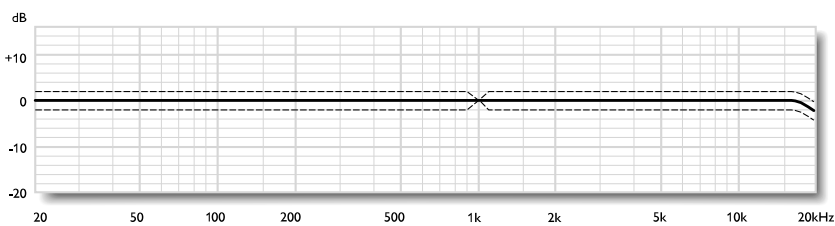
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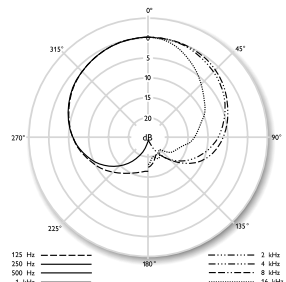
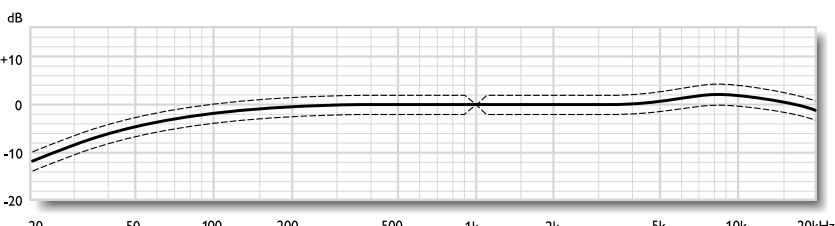
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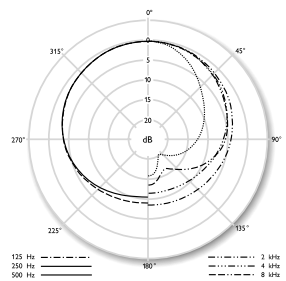
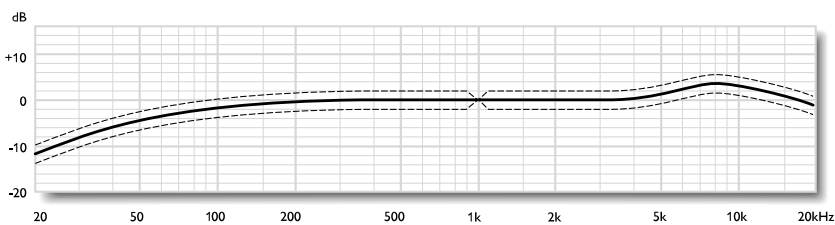
**KM 131**



**KM 140**



**KM 143**



**KM 145**

