

## Microphones

## RF Condenser Microphones

## Operating Principle of the RF Condenser Microphone

RF condenser microphones constitute a unique, sophisticated class of condenser microphones. They fulfil the very highest demands made on sound quality and versatility, and are renowned for their high quality, highly accurate sound reproduction, ruggedness, all-weather operation, wide frequency response and extremely low inherent self-noise.

Usually, a high capsule polarisation voltage would be necessary, however, RF condenser microphones use a comparatively low RF voltage, generated by a low-noise oscillator. It is modulated by the capacitance changes produced by the sound waves moving the capsule diaphragm. Following the demodulation, a low-noise audio frequency signal with very low source impedance is available, which can be used to directly drive 'ordinary' bipolar transistors.

As bipolar transistors produce less random noise than the field-effect transistors usually needed, electrical equalisation technology can be included to increase the microphone's dynamic range and linearise its frequency response. As a result, an excellent low frequency response can be achieved even with small capsules, which would normally only be possible using larger capsules. In addition, small capsules achieve a considerably better high frequency response than large capsules.

The RF process results in a considerable reduction of the electrical impedance of the capsule and enables RF condenser microphones to be operated in all weather conditions. A further advantage of this process is that an ungrounded audio frequency signal is available although the capsule is grounded. This is why all RF condenser microphones possess a genuine fully floating, balanced output without having to use an audio frequency transformer.

## Sennheiser's Revolutionary Symmetrical Microphone Capsule

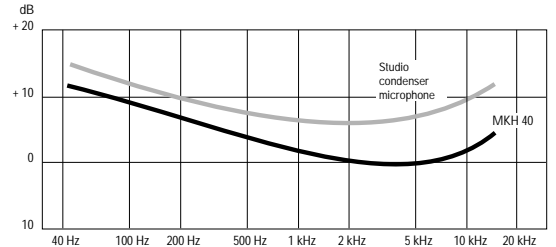
The MKH 20 to 80 microphones have Sennheiser's unique and revolutionary symmetrical push-pull capsule. Besides the normal back plate, this capsule is fitted with an additional front plate, with the diaphragm being positioned between them. Both plates are acoustically transparent. Any impedance changes in the air gaps between the diaphragm and the respective plate are opposite and therefore cancel each other out, which leads to an unchanging acoustic impedance. This balanced design produces extremely low distortion figures and a higher capsule output that gives a much lower noise figure. The result is a microphone series unmatched in clarity and neutrality.

## Power Supply Units

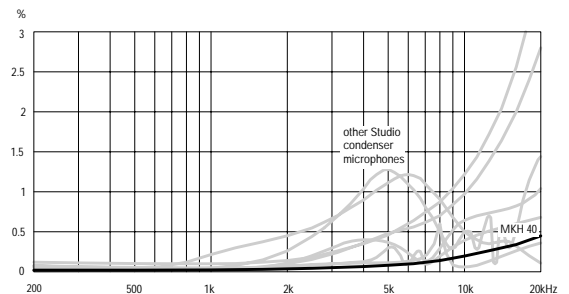
All RF condenser microphones use 48 V phantom powering (P 48). The TU-3 version of the MKH 416 operates using 12 V AB (T) powering. All models are powered externally via the microphone cable. The MZA 14 P 48 U (or MZA 14 TU) battery unit is available for both types of powering.

## Connections

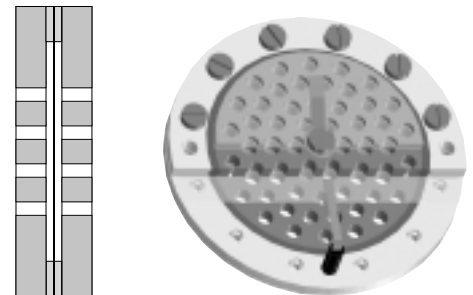
All RF condenser microphones are fitted with a 3-pin XLR connector as standard. Standard polarity results in a positive voltage at pin 2 against pin 3, when pressure increases in front of the diaphragm.



One-third octave band analysis of the MKH 40 inherent noise compared to a conventional low-noise studio condenser microphone



Correlation of frequency and intermodulation distortion



Sennheiser's symmetrical push-pull transducer



MZA 14

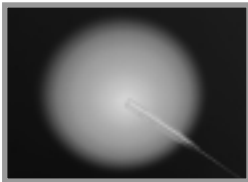
## Microphones

### RF Condenser Microphones

#### Pick-up Patterns

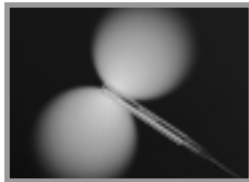
The various pick-up patterns of Sennheiser's MKH RF condenser microphones are illustrated by the examples below:

Omni-directional



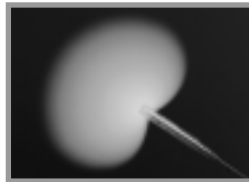
MKH 20

Figure-of-eight



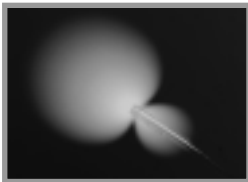
MKH 30

Cardioid



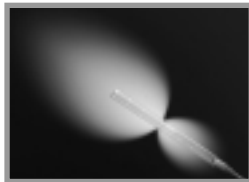
MKH 40

Super-cardioid



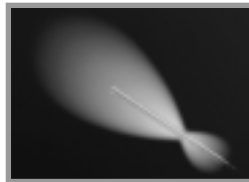
MKH 50

Short gun



MKH 60

Long gun



MKH 70

#### Recommendations for Use

	MKH 20	MKH 30	MKH 40	MKH 50	MKH 60	MKH 70	MKH 80	MKH 800	MKH 416
Live recordings	●	●	●	●	●	●	●	●	
Main microphone	●	●	●	●			●	●	
Support microphone		●	●	●	●		●	●	
MS stereo	●	●	●	●	●		●	●	
Nature recordings	●	●	●	●	●	●	●	●	●
Sound effects	●	●	●	●	●	●	●	●	●
Outside broadcast		●	●	●	●	●			●
Film		●	●	●	●	●	●		●
Close-miking	▲		▲	▲			▲		
Hand-held microphones	○	○	○	○	○	○			○

- ▲ with MZP 40
- with suspension/pistol grip

Cat. No.	Model	Brief Description	Variants	Page
02857	MKH 20	Omni-directional studio microphone	–	48
02872	MKH 30	Figure-of-eight studio microphone	–	49
02645	MKH 40	Cardioid studio microphone	–	50
03109	MKH 50	Super-cardioid studio microphone	–	51
03148	MKH 60	Short gun (interference tube) microphone	–	52
03149	MKH 70	Long gun (interference tube) microphone	–	53
03004	MKH 80	Studio microphone with 5 switchable pick-up patterns	–	54
		Polar diagrams and frequency response curves of the MKH 80		55
04927	MKH 800	Studio microphone with 5 switchable pick-up patterns	–	56
		Polar diagrams and frequency response curves of the MKH 800		57
01511	MKH 416 P 48 U3	Short gun (interference tube) microphone		58
01567			MKH 416 TU-3	

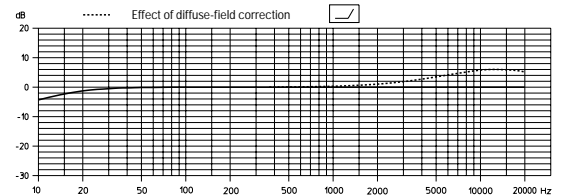
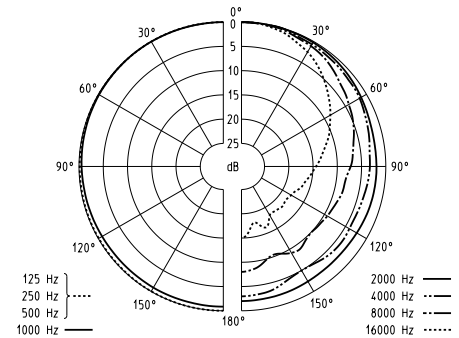
The MKH 20 is usually used as a main microphone for orchestras and solo instruments, and picks up the natural acoustics of the room, though it does have a much wider range of applications as omni-directional microphones do not suffer from 'proximity effect'.

**Features**

- Exceptionally flat frequency response, switchable for near and diffuse field applications
- High-frequency response can be accentuated by means of a pressure build-up ring
- Slightly increasing directivity at high frequencies to adjust tonal balance
- Exceptionally low inherent self-noise
- Transformerless and fully floating balanced output
- Switchable pre-attenuation
- Black, anodised light metal body
- Delivery includes: 1 MKH 20, 1 MZS 40 shock mount, 1 MZW 41 windshield, 1 pressure build-up ring



Cable pictured is an accessory not supplied with the microphone


**Technical Data**

Pick-up pattern	omni-directional
Frequency response	12 - 20,000 Hz
Sensitivity (free field, no load) (1 kHz)	25 (8) mV/Pa ± 1 dB
Nominal impedance	150 Ω
Min. terminating impedance	1 kΩ
Equivalent noise level	
A-weighted (DIN IEC 651)	10 (18) dB
CCIR-weighted (CCIR 468-3)	20 (28) dB
Max. sound pressure level	134 (142) dB at 1 kHz
Power supply	phantom 48 ± 4 V
Supply current	2 mA
Dimensions in mm	Ø 25 x 153
Weight	approx. 100 g

Values in parentheses with attenuator switched on (-10 dB)

**Profile**

Omni-directional studio microphone with switchable diffuse-field correction, switchable pre-attenuation and pressure build-up ring, frequency response 12 Hz - 20,000 Hz, sensitivity (free field, no load) 25 (8) mV/Pa ± 1 dB at 1 kHz, nominal impedance 150 Ω, min. terminating impedance 1 kΩ, equivalent noise level A-weighted 10 (18) dB, CCIR-weighted 20 (28) dB, max. SPL 134 (142) dB at 1 kHz, phantom powering 48 ± 4 V, supply current 2 mA, dimensions in mm Ø 25 x 153, weight approx. 100 g. Values in parentheses with attenuator switched on (-10 dB).

**Recommended Accessories**

Battery power supply unit	MZA 14 P 48 U	Cat. No. 02960
Table stand	MZT 441	Cat. No. 00799
	MZT 100	Cat. No. 01883
Dual clip	MZD 30, for MS stereo	Cat. No. 02990
Fish pole	MZB 415	Cat. No. 00972
Shock mount	MZS 40	Cat. No. 03017
Foam windshield	MZW 41	Cat. No. 29681
Popshield	MZP 40	Cat. No. 03132
Shock mount	MZS 20-1	Cat. No. 03609
Basket windshield	MZW 20-1	Cat. No. 03606
Hairy cover	MZH 20-1	Cat. No. 03610

**Product Variants**

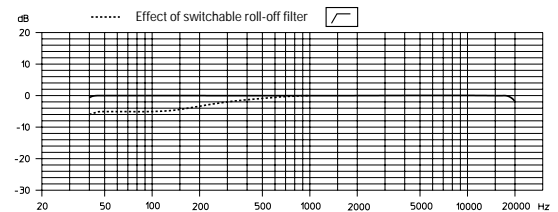
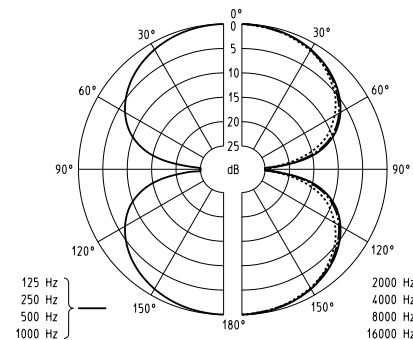
The symmetrical transducer design of the MKH 30 produces an unusually wide and smooth frequency response. It is particularly suited to soloists and small instrumental groups and can also serve as an 'S' microphone in MS stereo applications. As a support microphone it is particularly useful in the effective suppression of sounds from adjacent sound sources.

**Features**

- High rejection of lateral sounds
- Exceptionally low inherent self-noise
- Symmetrical transducer technology ensures extremely low distortion
- Transformerless and fully floating balanced output
- Switchable roll-off filter to compensate for proximity effects at a distance of approx. 0.5 m
- Switchable pre-attenuation
- Black, anodised light metal body
- Delivery includes: 1 MKH 30, 1 MZS 80 shock mount, 1 MZW 41 windshield



Cable pictured is an accessory not supplied with the microphone


**Technical Data**

Pick-up pattern	figure-of-eight
Frequency response	40 - 20,000 Hz
Sensitivity (free field, no load) (1 kHz)	25 (8) mV/Pa ± 1dB
Nominal impedance	150 Ω
Min. terminating impedance	1 kΩ
Equivalent noise level A-weighted (DIN IEC 651)	13 (19) dB
CCIR-weighted (CCIR 468-3)	22 (28) dB
Max. sound pressure level	134 (142) dB at 1 kHz
Power supply	phantom 48 ± 4 V
Supply current	2 mA
Dimensions in mm	Ø 25 x 174
Weight	approx. 110 g

Values in parentheses with attenuator switched on (-10 dB)

**Recommended Accessories**

Battery power supply unit	MZA 14 P 48 U	Cat. No. 02960
Table stand	MZT 441	Cat. No. 00799
	MZT 100	Cat. No. 01883
Dual clip	MZD 30, for MS stereo	Cat. No. 02990
Fish pole	MZB 415	Cat. No. 00972
Shock mount	MZS 80	Cat. No. 03685
Foam windshield	MZW 41	Cat. No. 29681
Popshield	MZP 40	Cat. No. 03132
Shock mount	MZS 20-1	Cat. No. 03609
Basket windshield	MZW 20-1	Cat. No. 03606
Hairy cover	MZH 20-1	Cat. No. 03610

**Profile**

Figure-of-eight studio directional microphone with switchable pre-attenuation and switchable roll-off filter. Frequency response 40 - 20,000 Hz, sensitivity (free field, no load) 25 (8) mV/Pa ± 1 dB at 1 kHz, nominal impedance 150 Ω, min. terminating impedance 1 kΩ, equivalent noise level A-weighted 13 (19) dB, CCIR-weighted 22 (28) dB, max. SPL 134 (142) dB at 1 kHz, phantom powering 48 ± 4 V, supply current 2 mA, dimensions Ø 25 x 174 mm, weight approx. 110 g. Values in parentheses with attenuator switched on (-10 dB).

**Product Variants**

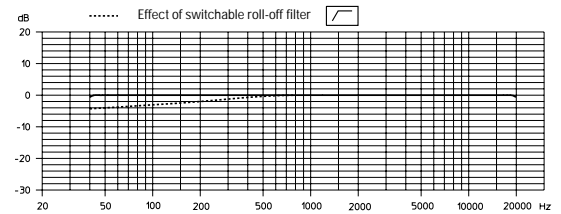
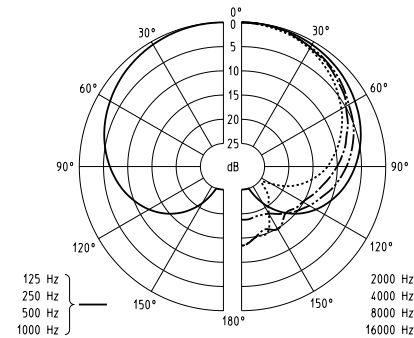
The MKH 40 has a large number of applications, for example as a main microphone, especially in lightly reverberant or acoustically less perfect rooms, with instrumental groups or for speech applications. Its wide-angled, neutral directional characteristics and high level of reverse attenuation ensure an exceptionally balanced sound.

**Features**

- Maximum front-to-back ratio
- Exceptionally low inherent self-noise
- Symmetrical transducer technology ensures extremely low distortion
- Transformerless and fully floating balanced output
- Switchable roll-off filter to compensate for proximity effects at a distance of approx. 0.5 m
- Switchable pre-attenuation
- Black, anodised light metal body
- Delivery includes: 1 MKH 40, 1 MZS 40 shock mount, 1 MZW 41 windshield



Cable pictured is an accessory not supplied with the microphone


**Technical Data**

Pick-up pattern	cardioid
Frequency response	40 - 20,000 Hz
Sensitivity (free field, no load) (1 kHz)	25 (8) mV/Pa ± 1dB
Nominal impedance	150 Ω
Min. terminating impedance	1 kΩ
Equivalent noise level	
A-weighted (DIN IEC 651)	12 (18) dB
CCIR-weighted (CCIR 468-3)	21 (27) dB
Max. sound pressure level	134 (142) dB at 1 kHz
Power supply	phantom 48 ± 4 V
Supply current	2 mA
Dimensions in mm	Ø 25 x 153
Weight	approx. 100 g

Values in parentheses with attenuator switched on (-10 dB)

**Profile**

Cardioid studio directional microphone with switchable pre-attenuation and switchable roll-off filter. Frequency response 40 Hz - 20,000 Hz, sensitivity (free field, no load) 25 (8) mV/Pa ± 1dB at 1 kHz, nominal impedance 150 Ω, min. terminating impedance 1 kΩ, equivalent noise level A-weighted 12 (18) dB, CCIR-weighted 21 (27) dB, max. SPL 134 (142) dB at 1 kHz, phantom powering 48 ± 4 V, supply current 2 mA, dimensions Ø 25 x 153 mm, weight approx. 100 g. Values in parentheses with attenuator switched on (-10 dB).

**Recommended Accessories**

Battery power supply unit	MZA 14 P 48 U	Cat. No. 02960
Table stand	MZT 441	Cat. No. 00799
	MZT 100	Cat. No. 01883
Dual clip	MZD 30, for MS stereo	Cat. No. 02990
Fish pole	MZB 415	Cat. No. 00972
Shock mount	MZS 40	Cat. No. 03017
Foam windshield	MZW 41	Cat. No. 29681
Popshield	MZP 40	Cat. No. 03132
Shock mount	MZS 20-1	Cat. No. 03609
Basket windshield	MZW 20-1	Cat. No. 03606
Hairy cover	MZH 20-1	Cat. No. 03610

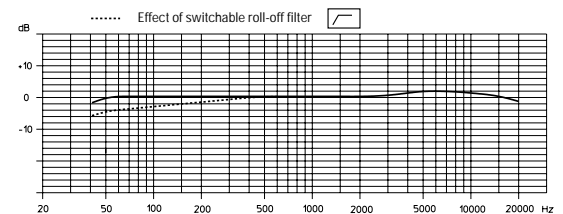
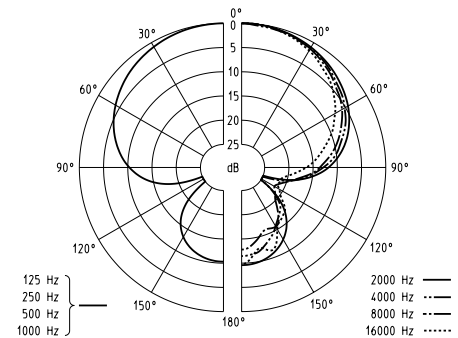
The super-cardioid MKH 50 offers a higher attenuation of diffuse-field and lateral sound than the cardioid microphone. It is principally designed for use as a soloist's or spot microphone for applications requiring a high degree of side-borne sound muting and feedback rejection. The directional characteristics are frequency-independent.

**Features**

- High rejection of lateral sounds
- Exceptionally low inherent self-noise
- Transformerless and fully floating balanced output
- Symmetrical transducer technology ensures extremely low distortion
- Switchable roll-off filter to compensate for proximity effects at a distance of approx. 0.5 m
- Switchable pre-attenuation
- Black, anodised light metal body
- Delivery includes: 1 MKH 50, 1 MZS 40 shock mount, 1 MZW 41 windshield



Cable pictured is an accessory not supplied with the microphone


**Technical Data**

Pick-up pattern	super-cardioid
Frequency response	40 - 20,000 Hz
Sensitivity (free field, no load) (1 kHz)	25 (8) mV/Pa ± 1 dB
Nominal impedance	150 Ω
Min. terminating impedance	1 kΩ
Equivalent noise level A-weighted (DIN IEC 651)	12 (18) dB
CCIR-weighted (CCIR 468-3)	21 (27) dB
Max. sound pressure level	134 (142) dB at 1 kHz
Power supply	phantom 48 ± 4 V
Supply current	2 mA
Dimensions in mm	Ø 25 x 153
Weight	approx. 100 g

Values in parentheses with attenuator switched on (-10 dB)

**Profile**

Super-cardioid studio directional microphone with switchable pre-attenuation and switchable roll-off filter. Frequency response 40 Hz - 20,000 Hz, sensitivity (free field, no load) 25 (8) mV/Pa ± 1dB at 1 kHz, nominal impedance 150 Ω, min. terminating impedance 1 kΩ, equivalent noise level A-weighted 12 (18) dB, CCIR-weighted 21 (27) dB, max. SPL 134 (142) dB at 1 kHz, phantom powering 48 ± 4 V, supply current 2 mA, dimensions Ø 25 x 153 mm, weight approx. 100 g. Values in parentheses with attenuator switched on (-10 dB).

**Recommended Accessories**

Battery power supply unit	MZA 14 P 48 U	Cat. No. 02960
Table stand	MZT 441	Cat. No. 00799
	MZT 100	Cat. No. 01883
Dual clip	MZD 30, for MS stereo	Cat. No. 02990
Fish pole	MZB 415	Cat. No. 00972
Shock mount	MZS 40	Cat. No. 03017
Foam windshield	MZW 41	Cat. No. 29681
Popshield	MZP 40	Cat. No. 03132
Shock mount	MZS 20-1	Cat. No. 03609
Basket windshield	MZW 20-1	Cat. No. 03606
Hairy cover	MZH 20-1	Cat. No. 03610

**Product Variants**

The MKH 60 is a lightweight short gun microphone. It is versatile and easy to handle and its superb lateral sound muting makes it an excellent choice for film and reporting applications. Its high degree of directivity ensures high sound quality for distance applications.

**Features**

- Extremely low inherent self-noise
- High sensitivity
- High directivity throughout the whole frequency range
- Transformerless and fully floating balanced output
- Infra-sonic cut-off filter
- Symmetrical transducer technology ensures extremely low distortion
- Switchable pre-attenuation, switchable roll-off filter and switchable treble emphasis
- Rugged and weather-proof
- Black, anodised light metal body
- Delivery includes: 1 MKH 60, 1 MZQ 40 quick release clamp



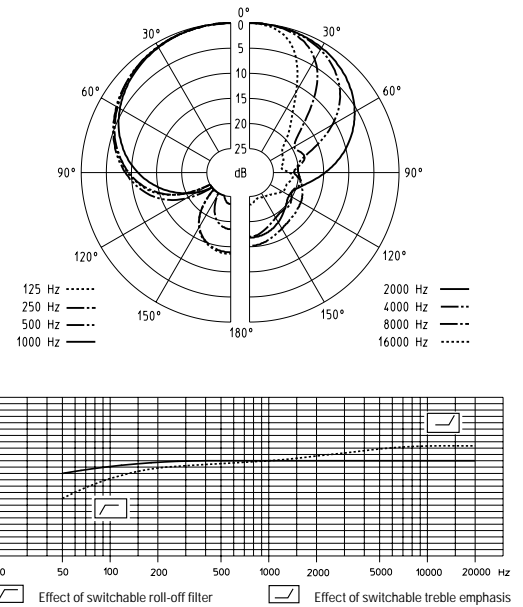
Cable pictured is an accessory not supplied with the microphone

**Recommended Accessories**

Battery power supply unit	MZA 14 P 48 U	Cat. No. 02960
Table stand	MZT 100	Cat. No. 01883
	MZT 441	Cat. No. 00799
Quick release clamp	MZQ 40	Cat. No. 35077
Shock mount	MZS 40	Cat. No. 03017
Foam windshield	MZW 61	Cat. No. 03194
Shock mount	MZS 20-1	Cat. No. 03609
Basket windshield	MZW 60-1	Cat. No. 03607
Hairy cover	MZH 60-1	Cat. No. 03224

**Possible Combinations**

Table stand:	MZT 100 or MZT 441, MZQ 40
Suspension/windshield:	MZS 40, MZW 61 or MZS 20-1, MZW 60-1, MZH 60-1


**Technical Data**

Pick-up pattern	super-cardioid/lobar
Frequency response	50 - 20,000 Hz
<b>Sensitivity</b>	
(free field, no load) (1 kHz)	40 (12.5) mV/Pa
Nominal impedance	150 $\Omega$
Min. terminating impedance	1 k $\Omega$
<b>Equivalent noise level</b>	
A-weighted (DIN IEC 651)	6 (14) dB
CCIR-weighted (CCIR 468-3)	18 (25) dB
Max. sound pressure level	125 (134) dB at 1 kHz
Power supply	phantom 48 $\pm$ 4 V
Supply current	2 mA
Dimensions in mm	$\varnothing$ 25 x 280
Weight	150 g

Values in parentheses with attenuator switched on (-10 dB)

**Profile**

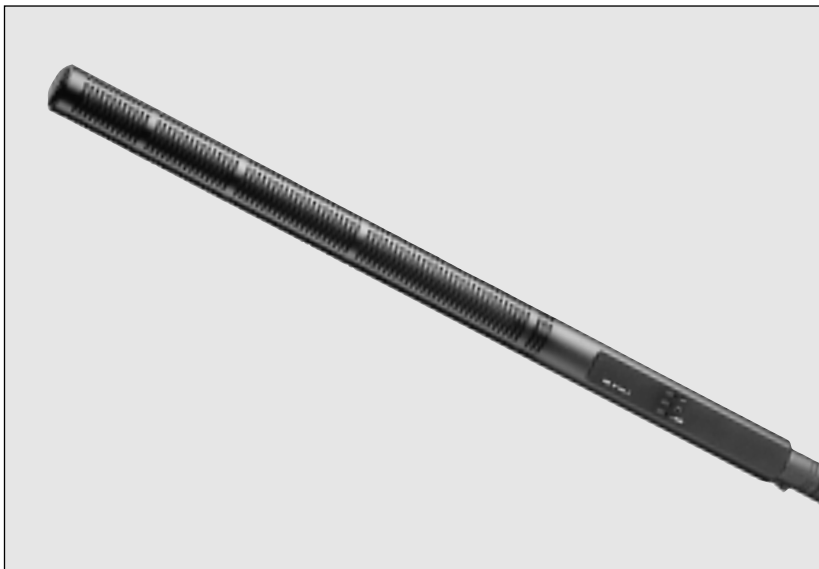
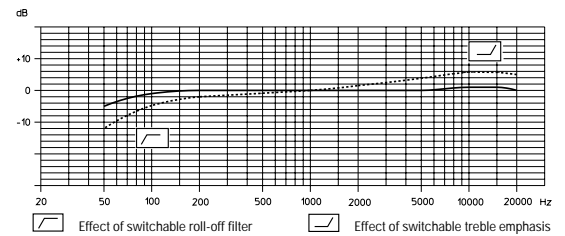
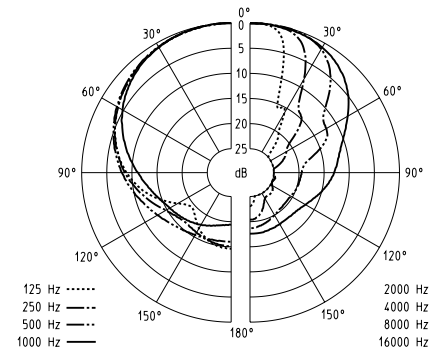
Super-cardioid/lobar (short gun) interference tube microphone with infrasonic cut-off filter, switchable pre-attenuation, switchable roll-off filter and switchable treble emphasis. Frequency response 50 - 20,000 Hz, sensitivity (free field, no load) 40 (12.5) mV/Pa at 1 kHz, nominal impedance 150  $\Omega$ , min. terminating impedance 1 k $\Omega$ , equivalent noise level A-weighted 6 (14) dB, CCIR-weighted 18 (25) dB, max. SPL 125 (134) dB at 1 kHz, phantom powering 48  $\pm$  4 V, supply current 2 mA, dimensions  $\varnothing$  25 x 280 mm, weight 150 g. Values in parentheses with attenuator switched on (-10 dB).



The MKH 70 is a lightweight long gun microphone. Its excellent directivity is particularly suited to applications undertaken in difficult conditions, such as high background noise and distance microphone positioning. Its frequency-independent directivity prevents sound colouration from off-axis sound sources.

**Features**

- Exceptionally low inherent self-noise
- Transformerless and fully floating balanced output
- Infra-sonic cut-off filter
- Symmetrical transducer technology ensures extremely low distortion
- Switchable pre-attenuation, switchable roll-off filter and switchable treble emphasis
- Rugged and weather-proof
- Black, anodised light metal body
- Delivery includes: 1 MKH 70



Cable pictured is an accessory not supplied with the microphone

**Recommended Accessories**

Battery power supply unit	MZA 14 P 48 U	Cat. No. 02960
Table stand	MZT 100	Cat. No. 01883
	MZT 441	Cat. No. 00799
Quick release clamp	MZQ 40	Cat. No. 35077
Shock mount	MZS 40	Cat. No. 03017
Foam windshield	MZW 71	Cat. No. 03195
Shock mount	MZS 20-1	Cat. No. 03609
Basket windshield	MZW 70-1	Cat. No. 03608
Hairy cover	MZH 70-1	Cat. No. 03225

**Possible Combinations**

Table stand:	MZT 100 or MZT 441, MZQ 40
Suspension/windshield:	MZS 40, MZW 71 or MZS 20-1, MZW 70-1, MZH 70-1

**Technical Data**

Pick-up pattern	super-cardioid/lobar
Frequency response	50 - 20,000 Hz
Sensitivity (free field, no load) (1 kHz)	50 (15) mV/Pa
Nominal impedance	150 $\Omega$
Min. terminating impedance	1 k $\Omega$
Equivalent noise level A-weighted (DIN IEC 651)	5 (13) dB
CCIR-weighted (CCIR 468-3)	16 (24) dB
Max. sound pressure level	124 (132) dB at 1 kHz
Power supply	phantom 48 $\pm$ 4 V
Supply current	2 mA
Dimensions in mm	$\varnothing$ 25 x 410
Weight	180 g

Values in parentheses with attenuator switched on (-10 dB)

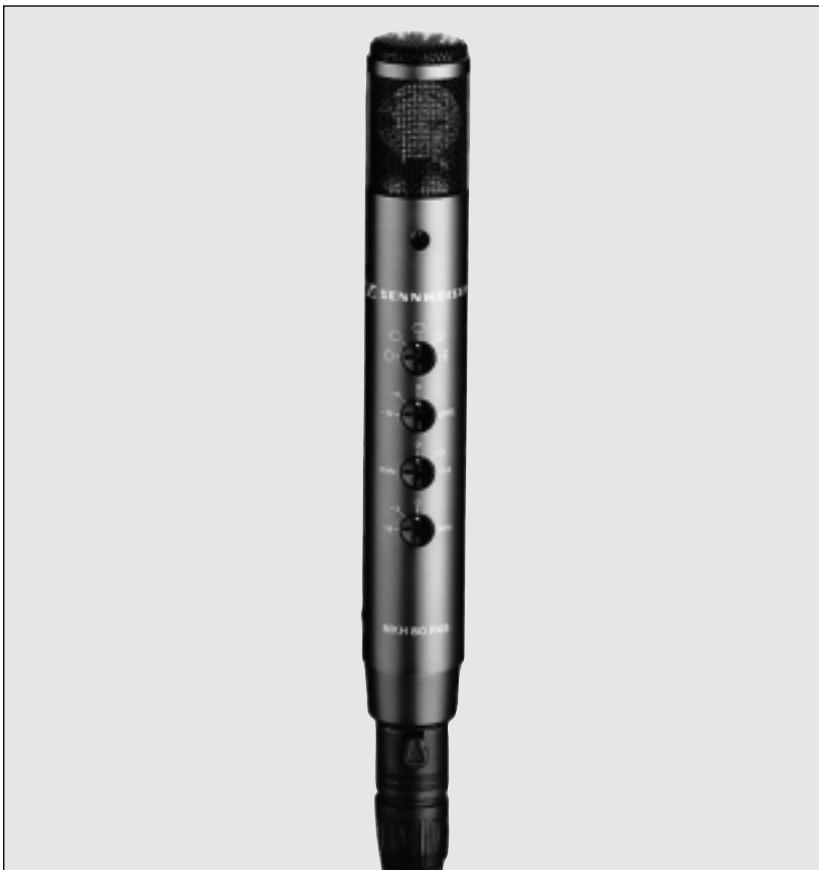
**Profile**

Super-cardioid/lobar (long gun) interference tube microphone with infra-sonic cut-off filter, switchable pre-attenuation, switchable roll-off filter and switchable treble emphasis. Frequency response 50 - 20,000 Hz, sensitivity (free field, no load) 50 (15) mV/Pa at 1 kHz, nominal impedance 150  $\Omega$ , min. terminating impedance 1 k $\Omega$ , equivalent noise level A-weighted 5 (13) dB, CCIR-weighted 16 (24) dB, max. SPL 124 (132) dB at 1 kHz, phantom powering 48  $\pm$  4 V, supply current 2 mA, dimensions  $\varnothing$  25 x 410 mm, weight 180 g. Values in parentheses with attenuator switched on (-10 dB).

The MKH 80 is a variable pattern condenser microphone with five switchable pick-up patterns. It is a superior microphone for any recording application, offering high clarity and the absolute minimum colouration. It is visually unobtrusive due to its compact design.

**Features**

- Wide, flat frequency response
- Extended low frequency response
- Exceptionally low inherent self-noise
- Wide dynamic range
- Switchable pre-attenuation, switchable roll-off filter and switchable treble emphasis
- Transformerless and fully floating balanced output
- LED for on-axis alignment
- Haematite-anodised light metal body
- Delivery includes: 1 MKH 80 P 48, 1 MZS 80 shock mount, 1 MZW 80 windshield



Cable pictured is an accessory not supplied with the microphone

**Recommended Accessories**

Battery power supply unit	MZA 14 P 48 U	Cat. No. 02960
Foam windshield	MZW 80, anthracite	Cat. No. 03780
Shock mount	MZS 80	Cat. No. 03685
Popshield	MZP 40	Cat. No. 03132

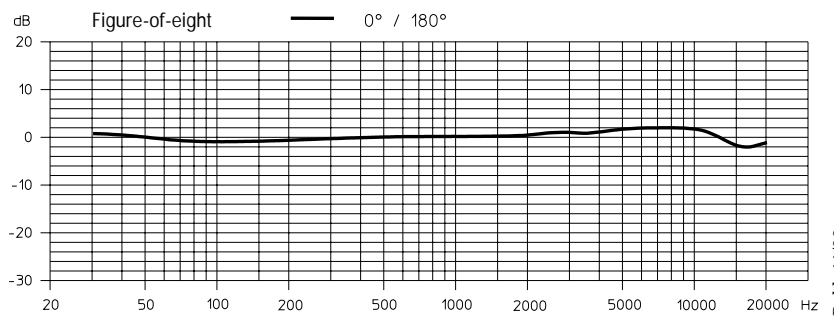
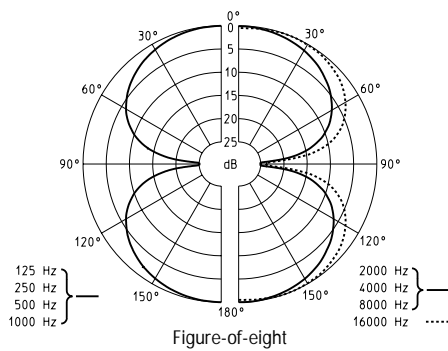
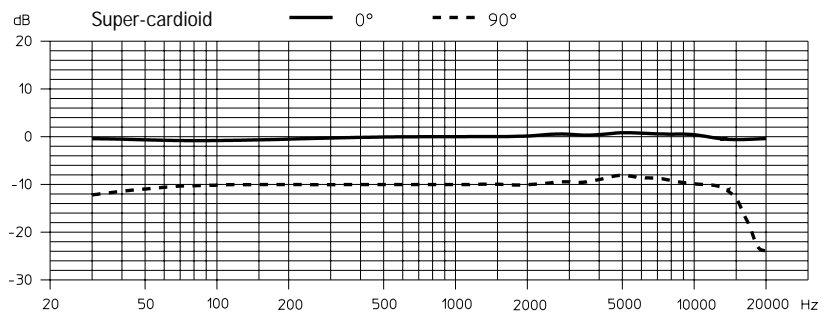
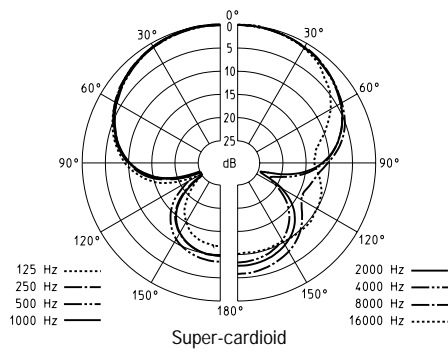
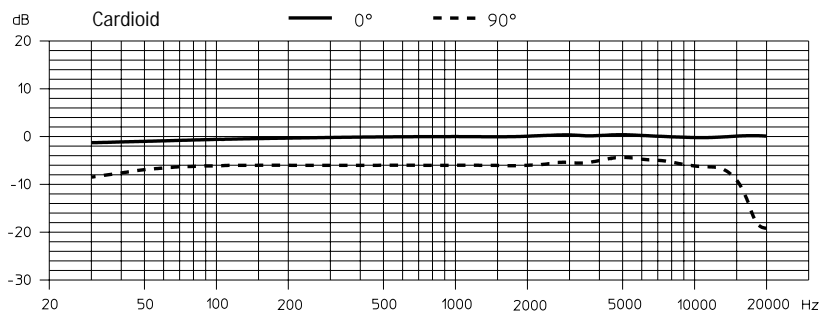
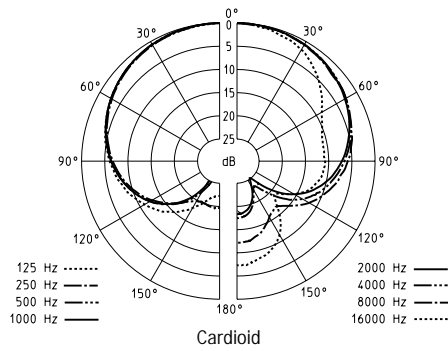
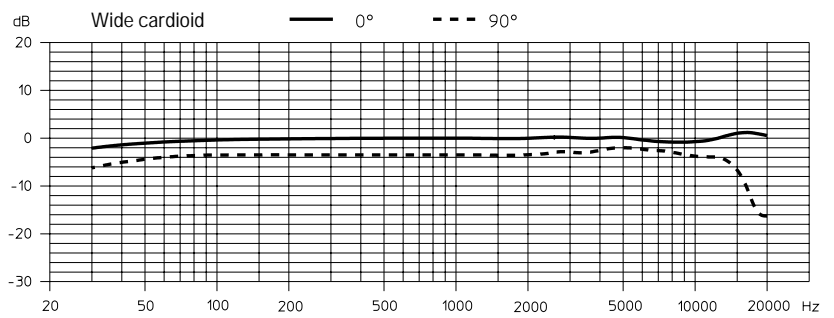
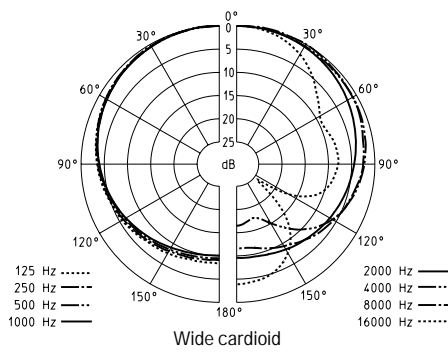
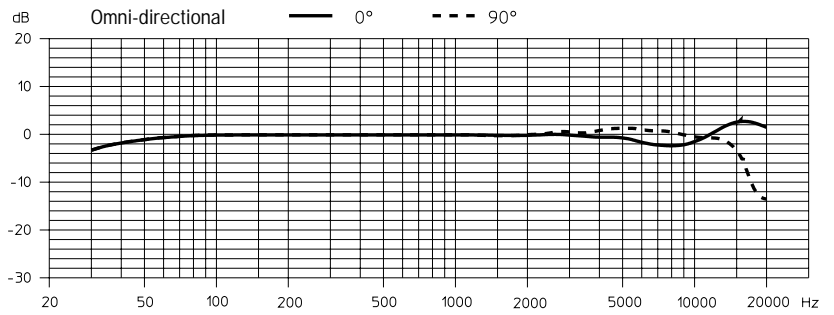
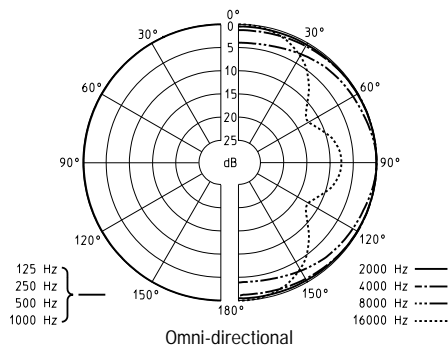
**Technical Data**

Pick-up pattern	omni-directional, wide cardioid, cardioid, super-cardioid, figure-of-eight
Frequency response	30 - 20,000 Hz
Sensitivity (free field, no load) (1 kHz)	40 mV/Pa ± 1 dB
Nominal impedance	150 Ω
Min. terminating impedance	1 kΩ
Equivalent noise level	
A-weighted (DIN IEC 651)	10 dB
CCIR-weighted (CCIR 468-3)	20 dB
Max. sound pressure level	136 (142) dB at 1 kHz
Power supply	phantom 48 ± 4 V
Supply current	3 mA
Dimensions in mm	Ø 26.7 x 176
Weight	135 g

Values in parentheses with attenuator switched on (6/12 dB)

**Profile**

Studio microphone with 5 switchable pick-up patterns (omni-directional, wide cardioid, cardioid, super-cardioid, figure-of-eight), switchable pre-attenuation, switchable roll-off filter and switchable treble emphasis. Frequency response 30 - 20,000 Hz, sensitivity (free field, no load) 40 mV/Pa ± 1 dB at 1 kHz, nominal impedance 150 Ω, min. terminating impedance 1 kΩ, equivalent noise level A-weighted 10 dB, CCIR-weighted 20 dB, max. sound pressure level 136 (142) dB at 1 kHz, phantom powering 48 ± 4 V, supply current 3 mA, dimensions Ø 26.7 x 176 mm, weight 135 g. Values in parentheses with attenuator switched on (6/12 dB).



RF Symmetrical Capsule Condenser Microphone

**MKH 800 P 48**

Cat. No. 04827

The MKH 800 condenser microphone is the first microphone to fully utilise the wider frequency response and dynamic range of the new high bitrate standard of advanced digital recording systems (for example SACD). Featuring five switchable pick-up patterns, the MKH 800 is a superior microphone for any recording application, offering high clarity and the absolute minimum colouration.

Features

- Extended frequency response up to 50 kHz
- Wide, flat frequency response
- Exceptionally low inherent self-noise, wide dynamic range
- Switchable pre-attenuation, switchable roll-off filter and switchable treble emphasis
- Transformerless and fully floating balanced output
- LED for on-axis alignment
- Anodised light metal body
- Delivery includes: 1 MKH 800 P 48, 1 MZS 80 shock mount, 1 MZW 80 windshield



Cable pictured is an accessory not supplied with the microphone

Technical Data

Pick-up pattern	omni-directional, wide cardioid, cardioid, super-cardioid, figure-of-eight
Frequency response	30 - 50,000 Hz
Sensitivity (free field, no load) (1 kHz)	40 mV/Pa ± 1 dB
Nominal impedance	150 Ω
Min. terminating impedance	2 kΩ
Equivalent noise level A-weighted (DIN IEC 651)	10 dB
CCIR-weighted (CCIR 468-3)	20 dB
Max. sound pressure level	136 (142) dB at 1 kHz
Power supply	phantom 48 ± 4 V
Supply current	3 mA
Dimensions in mm	Ø 26.7 x 176
Weight	135 g

Values in parentheses with attenuator switched on (6/12 dB)

Profile

Studio microphone with 5 switchable pick-up patterns (omni-directional, wide cardioid, cardioid, super-cardioid, figure-of-eight), switchable pre-attenuation, switchable roll-off filter and switchable treble emphasis. Frequency response 30 - 50,000 Hz, sensitivity (free field, no load) 40 mV/Pa ± 1 dB at 1 kHz, nominal impedance 150 Ω, min. terminating impedance 2 kΩ, equivalent noise level A-weighted 10 dB, CCIR-weighted 20 dB, max. sound pressure level 136 (142) dB at 1 kHz, phantom powering 48 ± 4 V, supply current 3 mA, dimensions Ø 26.7 x 176 mm, weight 135 g. Values in parentheses with attenuator switched on (6/12 dB).

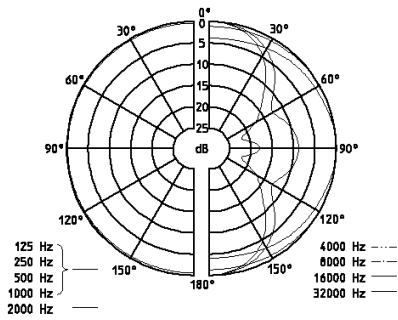
Recommended Accessories

Battery power supply unit	MZA 14 P 48 U	Cat. No. 02960
Foam windshield	MZW 80, anthracite	Cat. No. 03780
Shock mount	MZS 80	Cat. No. 03685
Popshield	MZP 40	Cat. No. 03132

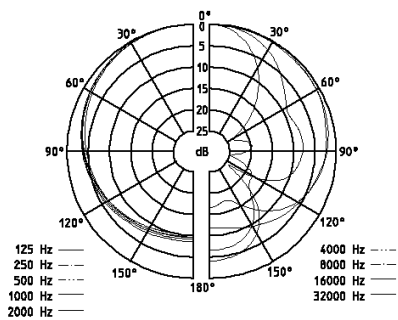
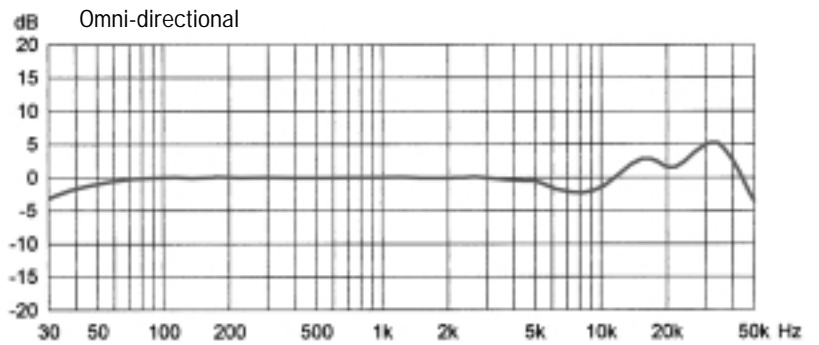
Product Variants

RF Symmetrical Capsule Condenser Microphone  
Polar Diagrams and Frequency Response Curves

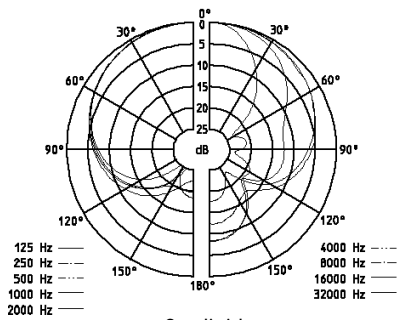
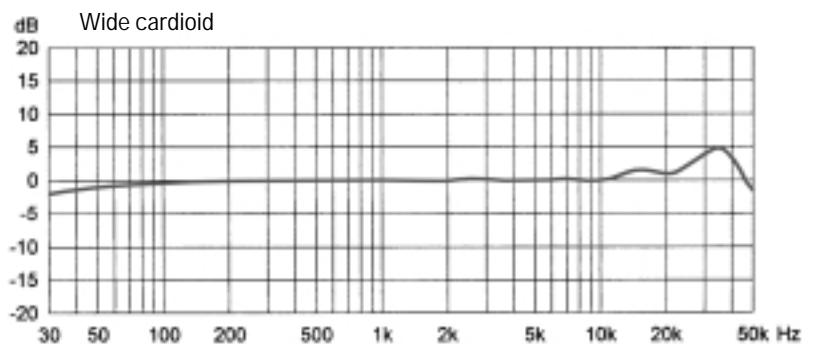
**MKH 800 P 48**



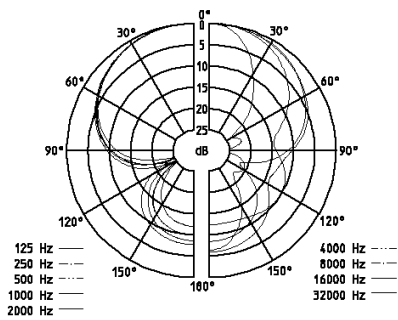
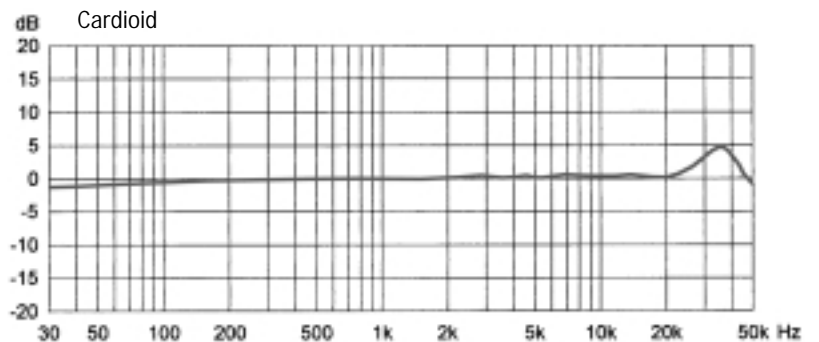
Omni-directional



Wide cardioid



Cardioid



Super-cardioid

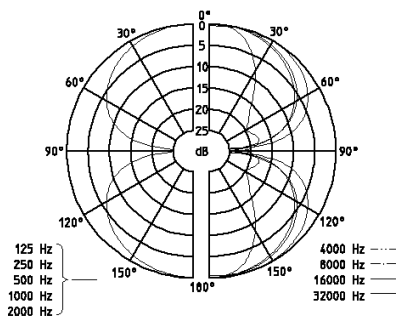
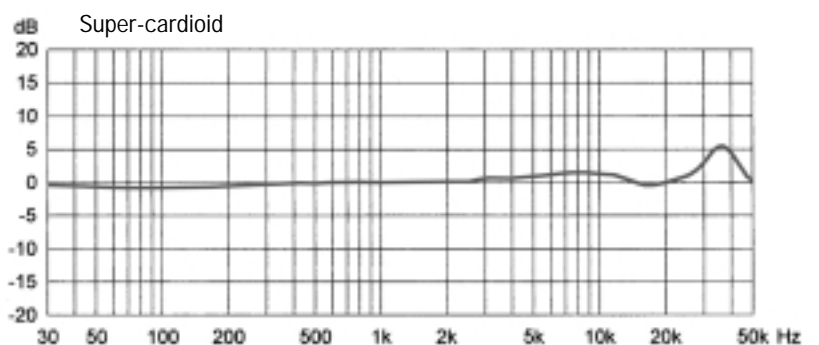
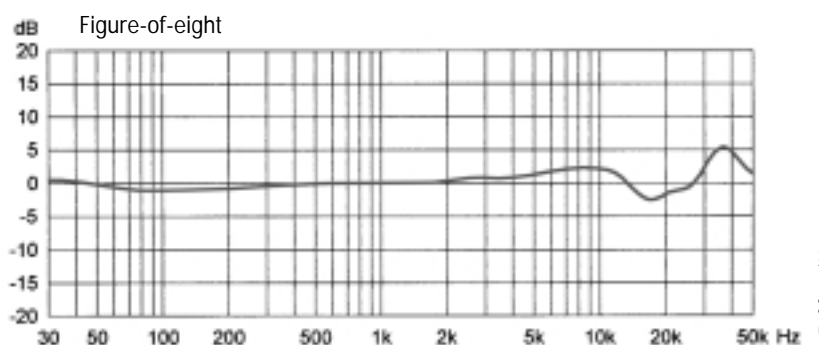


Figure-of-eight



## Microphones

 RF Condenser Microphone  
 Short Gun Interference Tube Microphone

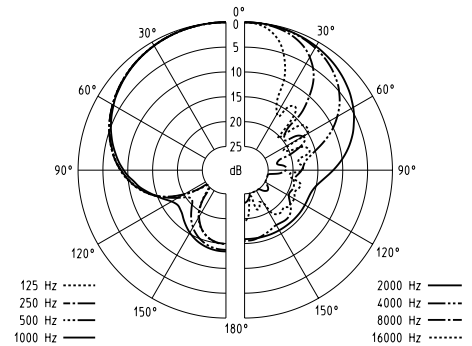
# MKH 416 P 48 U 3

Cat. No. 01511

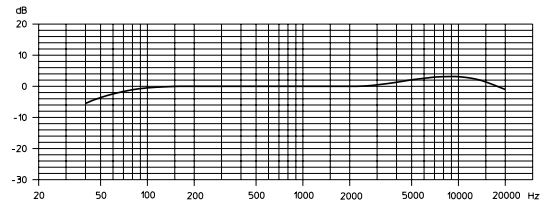
The MKH 416 is a short gun interference tube microphone. Its excellent directivity and compact design, high consonant articulation and feedback rejection make the MKH 416 a superb all-round microphone for film, radio and television, especially for outside broadcast applications.

**Features**

- Increased directivity due to interference tube principle
- Very low inherent self-noise
- High sensitivity
- Transformerless and fully floating balanced output
- Rugged, suitable for adverse climatic conditions
- Matt black all-metal body
- Delivery includes: 1 MKH 416 P 48 U 3  
1 MZW 415 windshield



Cable pictured is an accessory not supplied with the microphone


**Technical Data**

Pick-up pattern	super-cardioid/lobar
Frequency response	40 - 20,000 Hz
Sensitivity (free field, no load) (1 kHz)	25 mV/Pa $\pm$ 1 dB
Nominal impedance	25 $\Omega$
Min. terminating impedance	800 $\Omega$
Equivalent noise level A-weighted (DIN IEC 651)	approx. 13 dB
CCIR-weighted (CCIR 468-3)	approx. 24 dB
Max. sound pressure level	130 dB at 1 kHz
Power supply	phantom 48 $\pm$ 12 V
Supply current	2 mA
Dimensions in mm	$\varnothing$ 19 x 250
Weight	approx. 165 g

**Profile**

Super-cardioid/lobar short interference tube microphone, frequency response 40 - 20,000 Hz, sensitivity (free field, no load) 25 mV/Pa  $\pm$  1 dB at 1 kHz, nominal impedance 25  $\Omega$ , min. terminating impedance 800  $\Omega$ , equivalent noise level A-weighted approx. 13 dB, CCIR-weighted approx. 24 dB, max. sound pressure level 130 dB at 1 kHz, phantom powering 48  $\pm$  12 V, supply current 2 mA, dimensions  $\varnothing$  19 x 250 mm, weight approx. 165 g.

**Recommended Accessories**

Battery power supply unit	MZA 14 P 48 U	Cat. No. 02960
Table stand	MZT 100	Cat. No. 01883
	MZT 105-1	Cat. No. 00524
	MZT 441	Cat. No. 00799
Quick release clamp	MZQ 100	Cat. No. 02155
Foam windshield	MZW 415	Cat. No. 00895
Shock mount	MZS 20-1	Cat. No. 03609
Basket windshield	MZW 60-1	Cat. No. 03607
Hairy cover	MZH 60-1	Cat. No. 03224

**Possible Combinations**

Table stand:	MZT 100, MZT 105-1 or MZT 441, MZQ 100
Suspension/windshield:	MZS 20-1, MZW 60-1, MZH 60-1

**Product Variants**

MKH 416 TU-3 as MKH 416 P 48 U 3, but 12 V AB (T) powered

Cat. No. 01567