



MKH 418-S



Instruction manual

SENNHEISER

Important safety instructions

1. Read these safety instructions and the instruction manual of the product.
2. Keep these safety instructions and the instruction manual of the product. Always include all instructions when passing the product on to third parties.
3. Only use attachments, accessories and spare parts specified by the manufacturer.
4. Caution: The protective basket and pop shield must be completely dry when you mount them on the microphone. Moisture can cause malfunctions or damage to the capsule.
5. Connect the microphone only to microphone inputs and supply units that provide 48V phantom powering in accordance with IEC 61938.
6. Do not attempt to open the product housing on your own. The warranty is voided for products opened by the customer.
7. Refer all servicing to qualified service personnel. Servicing is required when the product has been damaged in any way, liquid has been spilled or objects have fallen into the product, when the product has been exposed to rain or moisture, does not operate normally, or has been dropped.
8. Use the product only under the conditions of use listed in the specifications.
9. Let the product come to ambient temperature before switching it on.
10. Do not operate the product if it was damaged during transportation.
11. Always run cables so that no one can trip over them.
12. Keep the product and its connections away from liquids and electrically conductive objects that are not necessary for operating the product.
13. Do not use any solvents or aggressive cleaning agents to clean the product.
14. Caution: Very high signal levels can damage your hearing and your loudspeakers. Reduce the volume on the connected audio devices before switching on the product; this will also help prevent acoustic feedback.

Intended use

The product is designed for indoor and outdoor use. The product can be used for commercial purposes.

It is considered improper use when the product is used for any application not named in the corresponding instruction manual. Sennheiser does not accept liability for damage arising from improper use or misuse of this product and its attachments/accessories.

Before putting the products into operation, please observe the respective country-specific regulations!

Package contents

- Condenser microphone MKH 418-S
- Instruction manual
- Transport case

Stereo Condenser Microphone MKH 418-S

Brief description

The MKH 418-S is an MS stereo microphone. Its high degree of directivity makes the MKH 418-S the ideal choice for stereophonic recordings for reporting, film and television applications.

The microphone is designed for 48 V phantom powering and operates using the RF principle. This principle ensures high operational reliability, even under extreme climatic conditions. The MKH 418-S has two independent acoustic systems for generating the mid and side signals. The mid signal (M) is generated by a shotgun microphone system. At high frequencies, this results in a lobar pick-up pattern, whereas at low frequencies there is a transition to a super-cardioid characteristic. The side signal (S) is produced by a figure-of-eight capsule, whose positive side is directed to the left. The M and S signals are available independently at the microphone output. The microphone is positioned correctly when the word „TOP” is pointing upwards.

Powering

The MKH 418-S is designed for 48 V phantom powering. To ensure proper operation of the microphone, the two channels always have to be powered simultaneously, even if only the signal of one channel is required. If no 48 V phantom powering is available at the microphone input of the subsequent device, suitable power supply units must be interconnected.

The MKH 418-S is connected via a 5-pin XLR cable. The connector of the MKH 418-S has standard pin assignment:

Pin 1 = Casing/ground

Pin 2 = M channel (+)

Pin 3 = M channel (-)

Pin 4 = S channel (+)

Pin 5 = S channel (-)

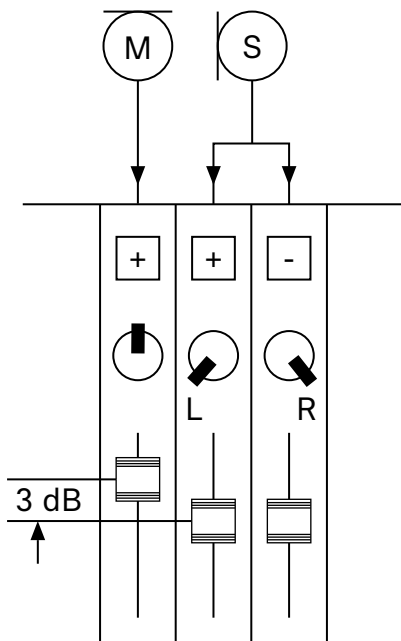
Notes on MS Stereo Sound Recording

The MS signal format of the MKH 418-S provides a particularly easy means of setting the optimum balance between the main information of the mid channel and the spatial contribution of the side channel. This balancing can even be performed during re-processing without a loss of information if the original MS signals were recorded.

The MS signal format is converted into the XY format (ie: standard left/right stereo) by adding or subtracting the signals according to the principle $X = M + S$, $Y = M - S$. The proportion

of the S signal influences the spatial effect and should be chosen in each case in accordance with the recording situation. In order to avoid restricting the possibilities of designing the sound impression, MS - XY matrixing in the microphone was not employed.

If a matrix circuit is not available on the mixing console, matrixing can be performed using the 3-fader method.



The M signal is connected to the first microphone channel and panned centre. The S signal is connected to the second channel and panned full left. Take an output from the second channel and connect to the third channel panned full right and phase reversed (via a phase reverse switch or via the cable). (To set the correct S signal level - set the pan controls of channel two to central, set the main fader to normal level and set the correct level at the preset. Then, set the pan control of channel 3 to centre, set the main fader to the same level as channel two and then adjust the pre-set of channel three until the signal totally disappears - the two channels are now set identical - now pan channel two fully left and channel three fully right for normal operation). Channels two and three are controlled as a single fader (mechanically or electrically coupled together). The stereo width is controlled by the relative levels - less side is a narrower image, more side is a wider image. The displacement of the faders by 3 dB, as shown in the diagram as an example, results in 1:1 ratio matrixing.

During matrixing, it should be taken into account that the direction of off-axis sound signals can be determined less and less at high frequencies due to the increasing directivity of the

shotgun microphone. This may lead to diffused spatial effects, which can be desirable or undesirable depending on the recording situation. In case of doubt, the proportion of the S signal should not be chosen too high. In some cases, it might be necessary to reduce the treble in the S channel on the mixing console. At low frequencies below 300 Hz, it is very difficult to locate sounds for physiological reasons. Since the S system of the microphone, due to its design principle, is more sensitive than the M system to low-frequency interference caused for example by wind, the bass in the S channel should be reduced if required (eg: with a high-pass filter).

Manufacturer Declarations

Warranty

Sennheiser electronic GmbH & Co. KG gives a warranty of 24 months on these products.

For the current warranty conditions, please visit our website at www.sennheiser.com or contact your Sennheiser partner.

In compliance with the following requirements

- WEEE Directive (2012/19/EU)



Notes on disposal

The symbol of the crossed-out wheeled bin on the product, the battery/rechargeable battery (if applicable) and/or the packaging indicates that these products must not be disposed of with normal household waste, but must be disposed of separately at the end of their operational lifetime. For packaging disposal, please observe the legal regulations on waste segregation applicable in your country.

Further information on the recycling of these products can be obtained from your municipal administration, from the municipal collection points, or from your Sennheiser partner.

The separate collection of waste electrical and electronic equipment, batteries/rechargeable batteries (if applicable) and packagings is used to promote the reuse and recycling and to prevent negative effects caused by e.g. potentially hazardous substances contained in these products. Herewith you make an important contribution to the protection of the environment and public health.

EU Declaration of conformity

- RoHS Directive (2011/65/EU)
- EMC Directive (2014/30/EU)

The full text of the EU declaration of conformity is available at the following internet address:

www.sennheiser.com/download

Compliance

Europe



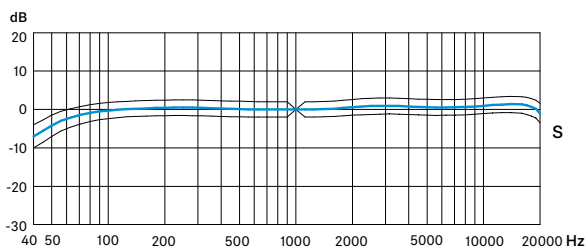
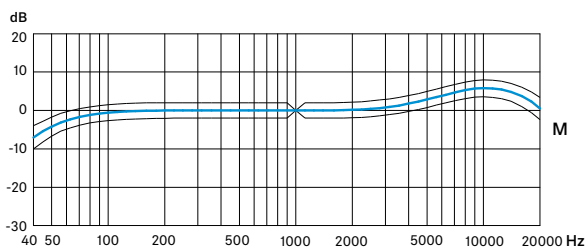
Russia



Specifications

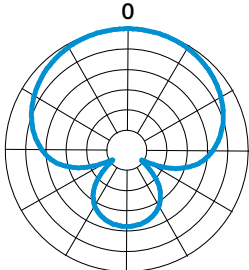
Frequency response	40 - 20,000 Hz
Transducer principle	RF condenser microphone
Acoustic operating principle	M: pressure gradient / interference tube receiver S: pressure gradient receiver
Pick-up pattern	M: super-cardioid/lobar S: figure-of-eight
Sensitivity (1 kHz)	M: 25 mV/Pa (-32 dBV) S: 10 mV/Pa (-40 dBV)
Output impedance (1 kHz)	< 25 Ω
Min. load impedance	1 k Ω
Equivalent noise level	M: 14 dB-A / 26 dB-CCIR S: 22 dB-A / 34 dB-CCIR
Max. SPL	130 dB SPL (63 Pa)
Power supply	P48: 48 \pm 4 V / 2 x 2.3 mA
Temperature range	Operation: -20 to +60 $^{\circ}$ C
Max. output voltage	1.5 V
Connector	5-pin XLR, male
Dimensions	\varnothing 19 mm x 280 mm
Weight	220 g

Frequency response

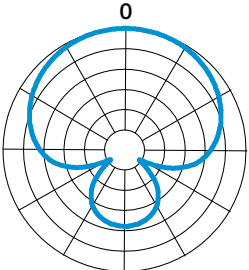


Polar Pattern

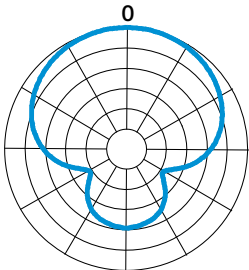
M (5 dB/div)



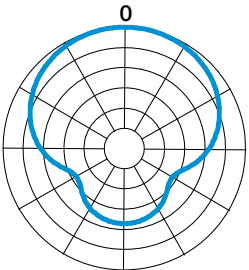
125 Hz



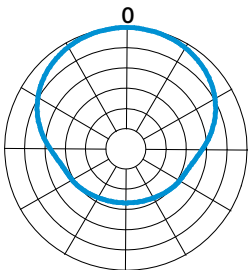
250 Hz



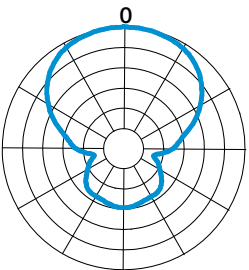
500 Hz



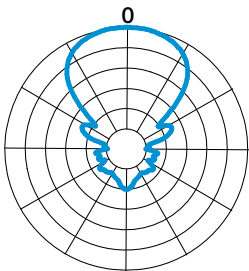
1 kHz



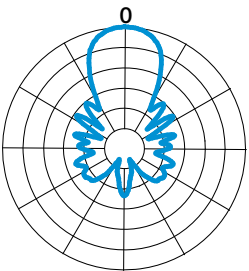
2 kHz



4 kHz

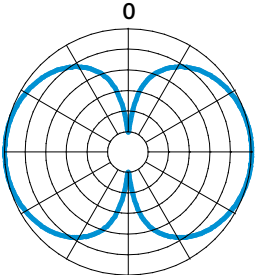


8 kHz

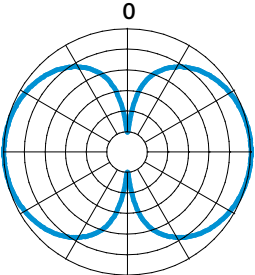


16 kHz

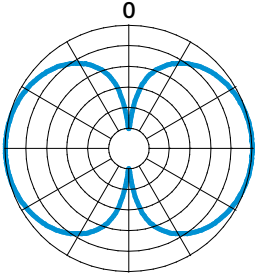
S (5 dB/div)



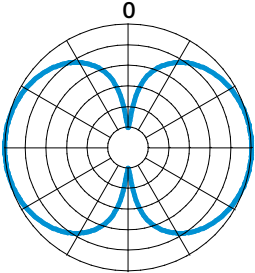
125 Hz



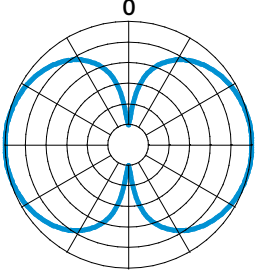
250 Hz



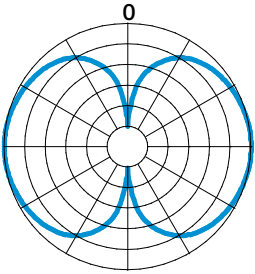
500 Hz



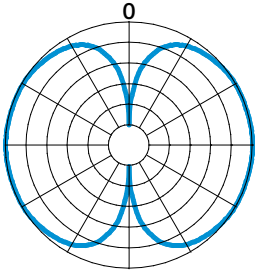
1 kHz



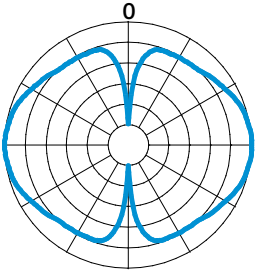
2 kHz



4 kHz

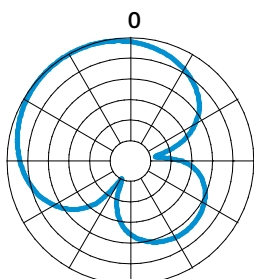


8 kHz

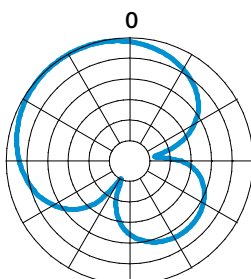


16 kHz

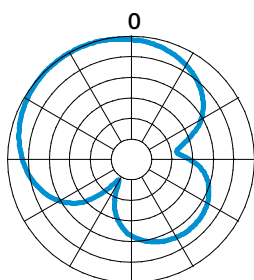
$X = M + S$ (5 dB/div)



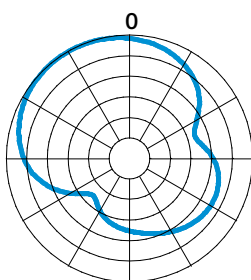
125 Hz



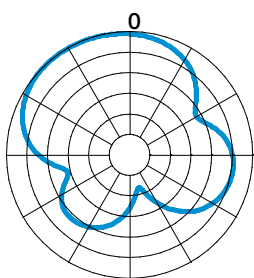
250 Hz



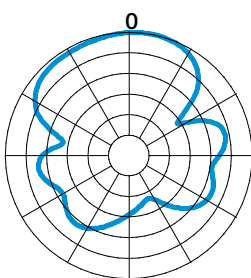
500 Hz



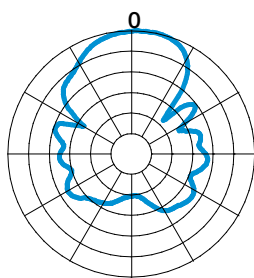
1 kHz



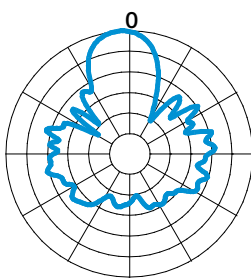
2 kHz



4 kHz

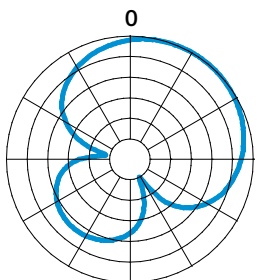


8 kHz

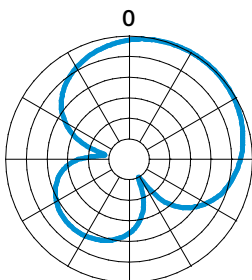


16 kHz

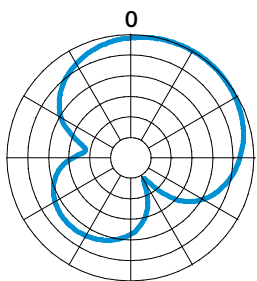
$Y = M - S$ (5 dB/div)



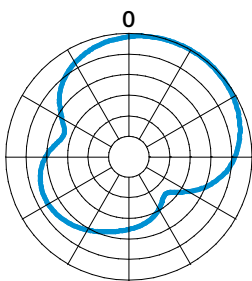
125 Hz



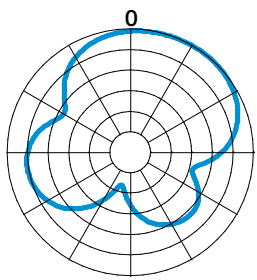
250 Hz



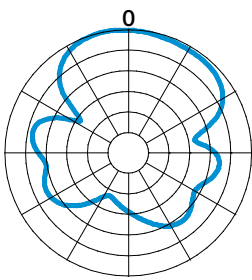
500 Hz



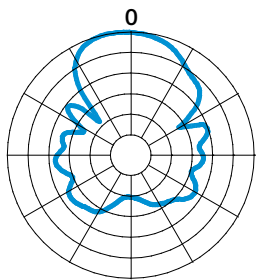
1 kHz



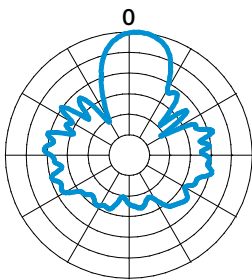
2 kHz



4 kHz



8 kHz



16 kHz