

Digitalmodul  
**MZD 8000**



Instruction manual

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Thank you for choosing Sennheiser!

We have designed this product to give you reliable operation over many years.

Over 60 years of accumulated expertise in the design and manufacture of high-quality electro-acoustic equipment have made Sennheiser a world-leading company in this field.

Please take a few moments to read these instructions carefully, as we want you to enjoy your new Sennheiser products quickly and to the fullest.

# Important safety information

- Please read this instruction manual carefully and completely before using the device.
- Make this instruction manual easily accessible to all users at all times.
- Always include this instruction manual when passing the device on to third parties.
- Never open the device. If devices are opened by customers in breach of this instruction, the warranty becomes null and void.
- Water entering the housing of the device can cause a short-circuit and damage the electronics. Protect the device from wetness. Use only a slightly damp cloth to clean the device.
- Do not expose the device to extreme temperatures.
- Use the device with care and store it in a clean, dust-free environment.

## Intended use of the device

Intended use includes:

- having read this instruction manual, especially the chapter “Important safety information” on page 2,
- using the device within the operating conditions and limitations described in this instruction manual.

“Improper use” means using the device other than as described in these instructions, or under operating conditions which differ from those described herein.

## The MZD 8000

The MZD 8000 digital module is an AES 42 A/D converter for all microphone heads of the MKH 8000 series.

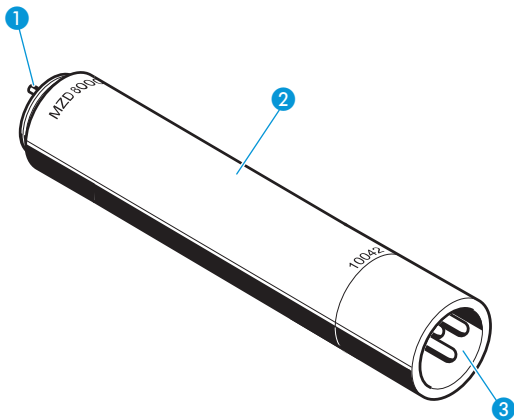
The MZD 8000 has the following features:

- Direct screw-on connection for the microphone heads of the MKH 8000 series
- 2-channel 24 bit A/D converter, dynamic range 115 dB
- Studio grade preamplifier and converter
- Sampling rate 44.1 kHz, 48 kHz, 88.2 kHz, 96 kHz, 176.4 kHz and 192 kHz
- Integrated, remote-controllable DSP functions such as low-cut filter, attenuation and gain
- Digital output in AES 42 format
- External synchronization via AES 42, Mode 2
- Color: Nextel<sup>®</sup> black, non-reflecting, matching to the MKH 8000 series

## Delivery includes

- 1 MZD 8000 digital module
- 1 instruction manual

## Product overview

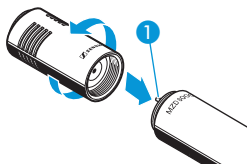


- 1 Connection for microphone head
- 2 MZD 8000 digital module
- 3 XLR-3M socket

# Putting the digital module into operation

## Connecting the microphone head and the cable

- ▶ Screw an MKH 8000 series microphone head to the connection ① of the MZD 8000 as shown.



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### **CAUTION!** Danger of damage to the device!

An incorrect supply voltage can cause damage to the power supply unit, the MZD 8000 and to subsequent devices.

- ▶ Only connect the digital module to microphone inputs and power supply units which supply phantom power according to the AES 42 standard.

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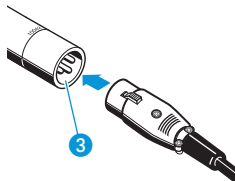
### **Note:**

During operation, the MZD 8000's connection for the microphone head provides 48 V phantom power.

- ▶ First screw on a microphone head before connecting an XLR cable.

To connect the cable:

- ▶ Connect an XLR cable to the XLR-3M socket ③ of the MZD 8000. The XLR connection locks into place with an audible click.

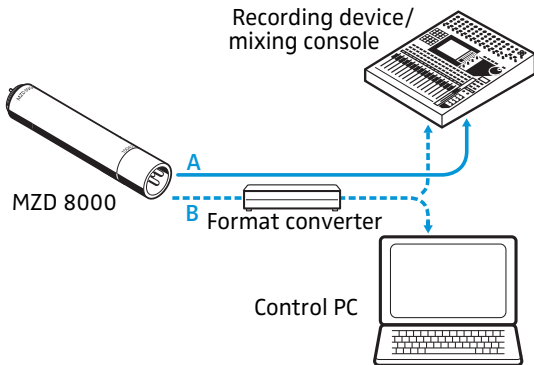


Long cables and multiple connectors in the cable path lead to a drop in the

supply voltage and a deterioration in jitter characteristics, especially at high sampling rates.

- ▶ If possible, use a continuous cable to connect the microphone and the subsequent device.
- ▶ For longer cable distances, only use AES/EBU cable.

### Connecting the digital module to other devices



The MZD 8000 digital module receives and transmits electrical signals according to the AES 42 standard (A).

If your mixing console does not support the AES 42 standard:

- ▶ Use a format converter for conversion into other signals (B).

For additional information, visit the Internet at [www.aes.org](http://www.aes.org).

- ▶ Synchronize all devices of the digital signal chain.

To connect the microphone:

- ▶ Use a suitable cable to connect the MZD 8000 to the microphone input of a format converter or a mixing console.
- ▶ When connecting the cables, make sure that the connectors are properly locked.

## Remote controlling the MZD 8000

Via the AES 42 interface, you can make the following settings to the MZD 8000.

Depending on the software or the format converter used, some settings are possibly not supported.

For information on software updates, visit the Internet at [www.sennheiser.com](http://www.sennheiser.com).

Parameter	Settings
Sampling rate	44.1/48/88.2/96/176.4/192 kHz
Analog pre-attenuation	0, -6, -12, -18 dB
Digital high-pass filter	Off/40/80/160 Hz
Digital signal gain	from 0 to 63 dB (in steps of 1 dB)
Test signal	Mono: 1 kHz sine Stereo: 1 kHz sine left and right (phase of right channel is advanced) Steps: Off/-6 dBFS/-48 dBFS/-60 dBFS
Phase (polarity)	0, 180°
Mute	On/off



## If a problem occurs...

Problem	Possible cause	Solution
Microphone does not work	No supply voltage available.	Check the power supply unit/the corresponding software settings.
	Microphone is not connected to an AES 42 input.	Check if the used input complies with the AES 42 standard.
	Channel is muted.	Deactivate "Mute" in the AES 42 remote control.
Audio signal is distorted	Excessive sound pressure of the audio signal to be recorded.	Increase the pick-up distance or activate the pre-attenuation in the AES 42 remote control.
	Overload due to low-frequency interference.	Use a suitable windshield (accessory). Activate the pre-attenuation in the AES 42 remote control.
No synchronization between MZD 8000 and receiver or no digital audio signal	Connected cable is incorrect.	Check the cable.
	Connected cable is too long.	Use an AES/EBU cable.
		Use a shorter cable.
		Reduce the sampling rate.
	Cable path with too many connectors.	Use a continuous cable.

## Cleaning the MZD 8000

Use a slightly damp cloth to clean the device from time to time.

**Note:**

Do not use any cleansing agents or solvents.

## Accessories

Cat. No.	Accessory
502094	MKHC 8020: Microphone head, omni-directional
502095	MKHC 8040: Microphone head, cardioid
502096	MKHC 8050: Microphone head, super-cardioid
502333	MZW 8000: Windshield, double-layered
502315	MZE 8015: Extension tube, 15 cm
502433	MZE 8030: Extension tube, 30 cm
502316	MZE 8060: Extension tube, 60 cm
502317	MZE 8120: Extension tube, 120 cm
502434	MZEF 8030: Vertical bar, 30 cm
502318	MZEF 8060: Vertical bar, 60 cm
502319	MZEF 8120: Vertical bar, 120 cm
502322	MZFS 8000: Floor stand
502323	MZG 8000: Swivel joint
502324	MZGE 8000: Bar connector, mono
502325	MZGE 8002: Bar connector, stereo
502326	MZL 8003: Remote cable, 3 m
502327	MZL 8010: Remote cable, 10 m
502328	MZQ 8000: Microphone clip
502329	MZQ 8001: Mini clip
502330	MZS 8000: Shock mount
502331	MZT 8000: Metal table stand
502332	MZT 8001: Table stand with acrylic base
502435	MZH 8000: Ceiling mount

## Specifications

Operating temperature range	-10°C to +60°C
Power supply	AES 42 phantom powering (DPP 10 V)
Current consumption	max. 160 mA
Phantom power at microphone input	P 48
Input amplitude for -0.5 dBFS at 0 dB attenuation	1.1 V <sub>rms</sub> (997 Hz sine)
Sensitivity (free field) (94 dB SPL) with MKH 8020	-31 dBFS
Harmonic distortion at -1 dBFS	< -100 dB
Inherent self-noise (mono mode, 40 ohms)	< -120 dBFS
Frequency response	10 Hz to 80 kHz
A/D conversion	24 bits/44.1 to 192 kHz delta-sigma
Group delay	22/19/15 samples single /double /quad speed
Frequency accuracy, asynchronous operation (free-running)	± 25 ppm
Pull-in range synchronous operation	min. ± 100 ppm
Diameter	19 mm
Length	96 mm
Weight	approx. 65 g

In compliance with

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**CE** EMC EN 55103-1/-2

**FCC** 47 CFR 15subpart B

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Industry Canada ICES\_003

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## Manufacturer Declarations

### Warranty

Sennheiser electronic GmbH & Co. KG gives a warranty of 24 months on this product.

For the current warranty conditions, please visit our web site at [www.sennheiser.com](http://www.sennheiser.com) or contact your Sennheiser partner.

### CE Declaration of Conformity



Sennheiser electronic GmbH & Co. KG declare that this device is in compliance with the essential requirements and other relevant provisions of Directive 2004/108/EC.

The declaration is available at [www.sennheiser.com](http://www.sennheiser.com).

### WEEE Declaration



Please dispose of this product at the end of its operational lifetime by taking it to your local collection point or recycling center for such equipment.



Sennheiser electronic GmbH & Co. KG  
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