



TWS One A Lapel,  
TWS One A/B/C/D Vocal,  
TWS One A/C/D Headset

UHF Wireless System

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# 1 General information



This document contains important instructions for the safe operation of the product. Read and follow the safety instructions and all other instructions. Keep the document for future reference. Make sure that it is available to all those using the product. If you sell the product to another user, be sure that they also receive this document.

Our products and documentation are subject to a process of continuous development. They are therefore subject to change. Please refer to the latest version of the documentation, which is ready for download under [www.thomann.de](http://www.thomann.de).

## 1.1 Symbols and signal words

In this section you will find an overview of the meaning of symbols and signal words that are used in this document.

Signal word	Meaning
<b>DANGER!</b>	This combination of symbol and signal word indicates an immediate dangerous situation that will result in death or serious injury if it is not avoided.
<b>NOTICE!</b>	This combination of symbol and signal word indicates a possible dangerous situation that can result in material and environmental damage if it is not avoided.

Warning signs	Type of danger
	Warning – high-voltage.
	Warning – danger zone.

## 2 Safety instructions

### Intended use

This device is intended to be used for the wireless transmission of audio signals from microphones or instruments to amplifiers or active speakers. Use the device only as described in this user manual. Any other use or use under other operating conditions is considered to be improper and may result in personal injury or property damage. No liability will be assumed for damages resulting from improper use.

This device may be used only by persons with sufficient physical, sensorial, and intellectual abilities and having corresponding knowledge and experience. Other persons may use this device only if they are supervised or instructed by a person who is responsible for their safety.

### Safety



#### **DANGER!**

#### **Risk of injury and choking hazard for children!**

Children can suffocate on packaging material and small parts. Children can injure themselves when handling the device. Never allow children to play with the packaging material and the device. Always store packaging material out of the reach of babies and small children. Always dispose of packaging material properly when it is not in use. Never allow children to use the device without supervision. Keep small parts away from children and make sure that the device does not shed any small parts (such knobs) that children could play with.



#### **DANGER!**

#### **Danger to life due to electric current!**

Within the device there are areas where high voltages may be present. Never remove any covers. There are no user-serviceable parts inside. Do not use the device when covers, safety equipment or optical components are missing or damaged.



**NOTICE!****Damage to the external power supply due to high voltages!**

The device is powered by an external power supply. The external power supply can be damaged if it is operated with the incorrect voltage or if high voltage peaks occur. In the worst case, excess voltages can also cause a risk of injury and fires. Make sure that the voltage specification on the external power supply matches the local power grid before plugging in the power supply. Only operate the external power supply from professionally installed mains sockets that are protected by a residual current circuit breaker (FI). Ensure that the power cord plug is easily accessible at all times if it is the only device to safely disconnect the device from the mains supply. As a precaution, disconnect the power supply from the power grid when storms are approaching or if the device will not be used for a longer period.

**NOTICE!****Damage to the device due to use of unsuitable external power supplies!**

If the device is operated with an unsuitable external power supply, the device can be damaged by overvoltage or incorrect polarity. If things go badly, using an unsuitable power supply can also cause a risk of injury and fire. Only use the external power supply designated for the device or an equivalent external power supply with identical parameters. If in doubt, compare the voltage specifications on the external power supply and the polarity (+/-) with the specifications in this manual and printed on the device. Voltage and polarity must always match.

**NOTICE!****Damage to the device if operated in unsuitable ambient conditions!**

The device can be damaged if it is operated in unsuitable ambient conditions. Only operate the device indoors within the ambient conditions specified in the "Technical specifications" chapter of this user manual. Avoid operating it in environments with direct sunlight, heavy dirt and strong vibrations. Avoid operating it in environments with strong temperature fluctuations. If temperature fluctuations cannot be avoided (for example after transport in low outside temperatures), do not switch on the device immediately. Never subject the device to liquids or moisture. Never move the device to another location while it is in operation. In environments with increased dirt levels (for example due to dust, smoke, nicotine or mist): Have the device cleaned by qualified specialists at regular intervals to prevent damage due to overheating and other malfunctions.



**NOTICE!**

**Risk of fire due to incorrect polarity!**



Incorrectly inserted batteries may cause fires and destroy the device and the batteries. Observe the markings on the batteries and on the device. Ensure that proper polarity is observed when inserting batteries.



**NOTICE!**

**Possible damage due to leaking batteries!**



Batteries can leak and cause permanent damage to the device. Take the batteries out of the device if it is not going to be used for an extended period of time.



**NOTICE!**

**Possible staining due to plasticiser in rubber feet!**



The plasticiser in the rubber feet of this product may react with the coating of the floor, resulting in permanent dark stains after a while. If necessary, use a suitable mat or felt pads to prevent direct contact between the product's rubber feet and the floor.

### 3 Features

The TWS One UHF wireless system is particularly suitable for professional audio transmission, for example, at events, on rock stages and in concert halls, theatres, musicals or discotheques.

The system can be operated free of charge and registration in Europe. Two systems can be operated simultaneously.

#### **TWS One A Lapel (item no. 312558)**

Your TWS One A Lapel UHF wireless system consists of the following components:

- Receiver TWS One R
  - Adjustable volume
  - Fixed antenna
  - Very high sensitivity at very high signal-to-noise ratio
  - Output: 6.35 mm jack socket (unbalanced)
  - Power supply: 12 V  $\overline{\text{---}}$
- Bodypack transmitter TWS One PT
  - Suitable for wearing on a belt or for attachment to the guitar strap
  - Input: 3.5 mm jack socket (unbalanced)
  - Power supply: two round cell batteries (AA, LR06), 1.5 V or comparable rechargeable batteries
- Lavalier condenser microphone PL-90 with wind shield
- Included accessories: 12 V power adapter, cable with two 6.35 mm jack plugs for connection to a mixer or amplifier and carrying case

The system operates at a fixed frequency of 863,100 MHz.

### TWS One A/B/C/D Vocal

Your TWS One Vocal UHF wireless system consists of the following components:

- Receiver TWS One R
  - Adjustable volume
  - Fixed antenna
  - Very high sensitivity at very high signal-to-noise ratio
  - Output: 6.35 mm jack socket (unbalanced)
  - Power supply: 12 V  $\overline{\text{---}}$
- Handheld microphone TWS One HT
  - Dynamic microphone
  - Slide switch to turn the microphone on and off
  - Power supply: two round cell batteries (AA, LR06), 1.5 V or comparable rechargeable batteries
- Included accessories: 12 V power adapter, cable with two 6.35 mm jack plugs for connection to a mixer or amplifier and carrying case

The system operates at a fixed frequency according to the following table:

System description	Frequency used
TWS One A Vocal (item no. 312562)	863.100 MHz
TWS One B Vocal (item no. 312563)	863.900 MHz
TWS One C Vocal (item no. 312564)	864.500 MHz
TWS One D Vocal (item no. 312566)	864.900 MHz

## TWS One A/C/D Headset

Your UHF wireless system TWS One Headset consists of the following components:

- Receiver TWS One R
  - Adjustable volume
  - Fixed antenna
  - Very high sensitivity at very high signal-to-noise ratio
  - Output: 6.35 mm jack socket (unbalanced)
  - Power supply: 12 V  $\overline{\text{---}}$
- Bodypack transmitter TWS One PT
  - Suitable for wearing on a belt or for attachment to the guitar strap
  - Input: 3.5 mm jack socket (unbalanced)
  - Power supply: two round cell batteries (AA, LR06), 1.5 V or comparable rechargeable batteries
- Headset condenser microphone PH-90 with wind shield
- Included accessories: 12 V power adapter, cable with two 6.35 mm jack plugs for connection to a mixer or amplifier and carrying case

The system operates at a fixed frequency according to the following table:

System description	Frequency used
TWS One A Headset (item no. 312567)	863.100 MHz
TWS One C Headset (item no. 312569)	864.500 MHz
TWS One D Headset (item no. 312570)	864.900 MHz

## 4 Installation and starting up

### 4.1 General Information

Unpack and check carefully there is no transportation damage before using the unit. Keep the equipment packaging. To fully protect the product against vibration, dust and moisture during transportation or storage use the original packaging or your own packaging material suitable for transport or storage, respectively.

Create all connections while the device is off. Use the shortest possible high-quality cables for all connections. Take care when running the cables to prevent tripping hazards.

#### Notes on radio transmission

- This equipment uses a frequency range that is free of charge and registration within the European Union.  
For more information, please visit: <http://www.thomann.de>.
- Make sure that no metal objects are located between transmitter and receiver.
- Avoid interference by other radio and in-ear systems.

## 4.2 Receiver

### Connecting the power supply

1. ➤ Connect the power supply to the receiver.
2. ➤ Plug the power supply into the wall socket.

### Connecting audio and starting up

1. ➤ Connect the audio output of the receiver to your mixer or your amplifier.
2. ➤ If you are using a microphone input on your mixer, turn the volume control to about 1 o'clock.  
If you are using a line input on your mixer, turn the volume control clockwise all the way to the stop.
3. ➤ To get the best sound quality, a fine adjustment of the controller may be required.

### 4.3 Bodypack transmitter

#### Inserting batteries

1. ➤ Ensure that the main switch is in the *[OFF]* position.
2. ➤ Open the battery compartment cover by pressing on the side latches.
3. ➤ Insert the batteries. Pay attention to the correct location of the poles. The correct battery arrangement is illustrated in the battery compartment.
4. ➤ Close the battery compartment.
5. ➤ Turn on the transmitter by sliding the main switch to the *[ON]* position.  
⇒ The indicator LED lights up briefly.

#### Connecting a microphone

1. ➤ Ensure that the main switch is in the *[OFF]* position.
2. ➤ Plug the 3.5 mm jack plug of the microphone into the input socket of the transmitter.
3. ➤ Turn on the transmitter by sliding the main switch to the *[ON]* position.
4. ➤ Test the transmission with the microphone.
5. ➤ If necessary, toggle the sensitivity switch on the transmitter or adjust the level on the receiver, your mixer or your amplifier.



## 4.4 Handheld microphone

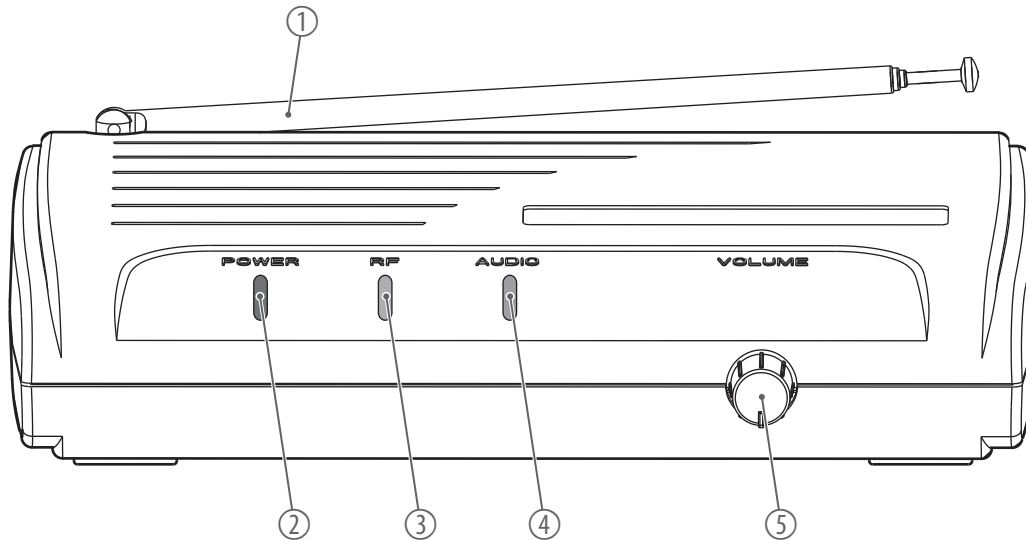
### Inserting batteries

1. ➤ Ensure that the main switch is in the *[OFF]* position.
2. ➤ Open the battery compartment cover by pressing on the fastening and sliding the cover down.
3. ➤ Insert the batteries. Pay attention to the correct location of the poles. The correct battery arrangement is illustrated in the battery compartment.
4. ➤ Close the battery compartment.
5. ➤ Turn on the transmitter by sliding the main switch to the *[ON]* position.
  - ⇒ The indicator LED lights up briefly.
6. ➤ Test the transmission.
7. ➤ If necessary, adjust the level on the receiver, your mixer or your amplifier.

## 5 Connections and controls

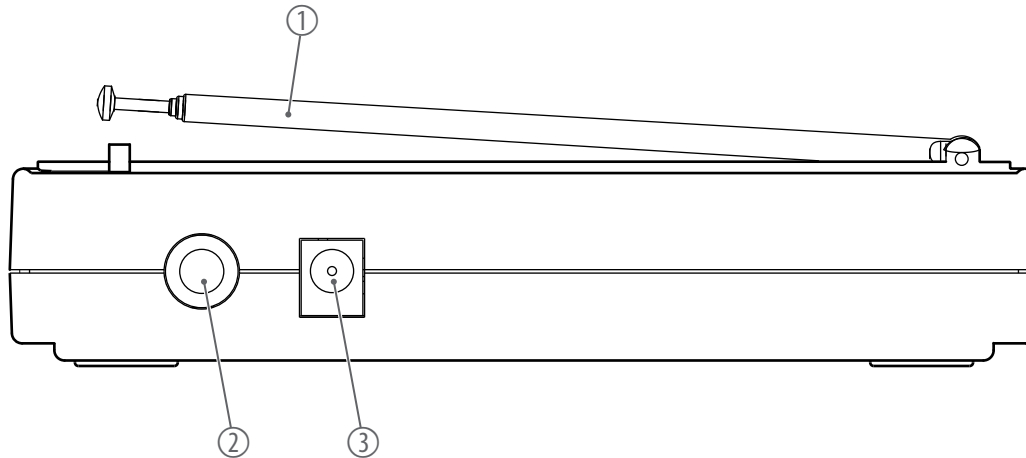
### 5.1 Receiver

#### Front panel



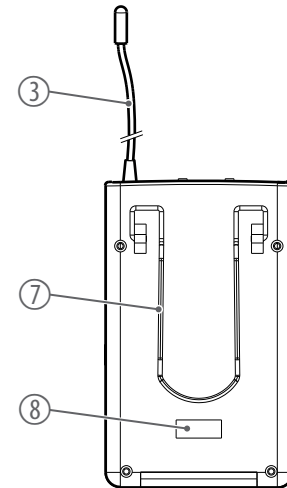
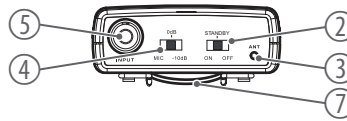
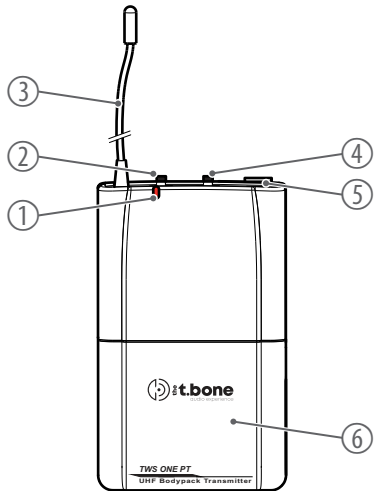
- 1 Rotating and swivelling antenna.
- 2 *[POWER]* | The LED lights up red when the receiver is powered and ready for use.
- 3 *[RF]* | The LED lights up orange when there is a radio connection to the transmitter.
- 4 *[AUDIO]* | The LED lights up green when an audio signal is received.
- 5 *[VOLUME]* | Rotary control for adjusting the output level

### Rear panel



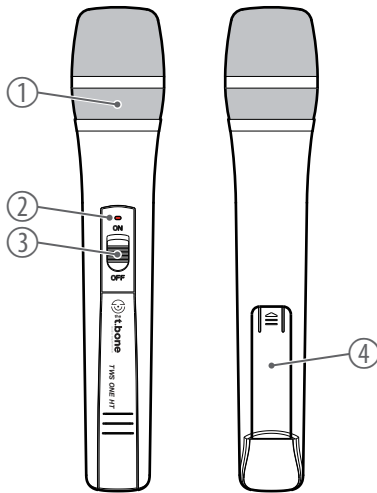
- |   |  |
|---|--|
| 1 | Rotating and swivelling antenna.   |
| 2 | <i>[AUDIO OUT]</i>   6.35-mm jack socket as unbalanced audio signal output for direct connection to a mixer, an amplifier or recording device.   |
| 3 | <i>[DC IN]</i>   Socket for connecting the supplied power adapter. If you are using a different power supply, observe the correct voltage, the polarity of the plug and the power consumption. |

## 5.2 Bodypack transmitter



1	Indicator LED. Displays the state of the batteries. If you turn on the transmitter, the LED lights up briefly, indicating that the batteries still provide sufficient voltage. If the LED lights up continuously, the batteries are depleted. In this case, you should replace the batteries or charge the rechargeable batteries.
2	Main switch
	<i>[ON]</i>   Turns the transmitter on.
	<i>[STANDBY]</i>   Mutes the transmitter.
	<i>[OFF]</i>   Turns the transmitter off.
3	<i>[ANT]</i>   Antenna
4	Selector switch for sensitivity
	<i>[MIC]</i>   Suitable for microphones
	<i>[0dB]</i>   Suitable for guitars with passive pickups
	<i>[-10dB]</i>   Suitable for guitars with active pickups
5	<i>[INPUT]</i>   3.5 mm jack socket (mono) for the microphone or instrument cable
6	Battery compartment for two round cell batteries (AA, LR06), 1.5 V or comparable rechargeable batteries
7	Retaining clamp
8	Indication of the frequency range in which the transmitter operates. The indication must match the information on the bottom of the receiver.

## 5.3 Handheld microphone



1	Microphone capsule
2	Indicator LED. Displays the state of the batteries. If you turn on the transmitter, the LED lights up briefly, indicating that the batteries still provide sufficient voltage. If the LED lights up continuously, the batteries are depleted. In this case, you should replace the batteries or charge the rechargeable batteries.
3	Main switch
	[ON]   Turns the transmitter on.
	[OFF]   Turns the transmitter off.
4	Battery compartment for two round cell batteries (AA, LR06), 1.5 V or comparable rechargeable batteries. Inside the battery compartment is a sticker indicating the frequency range in which the transmitter operates. The indication must match the information on the bottom of the receiver.

## 6 Technical specifications

### 6.1 Receiver

Number of systems that can be operated in parallel	2 systems with different fixed frequencies	
Input connections	Power supply	Socket for connecting the supplied power supply
Output connections	Audio signal	1× 6.35 mm jack socket, unbalanced
Output level adjustment	−18 dBV at a load of 3 kΩ	
Output impedance	1 kΩ	
Frequency range	863 MHz...865 MHz	
Bandwidth	200 kHz	
Sensitivity	< −92 dBm for 30 dB S/N ratio	
Antenna gain	1 dBi	
NF frequency response	60 Hz... 16 kHz (±3 dB)	
Total harmonic distortion (THD)	< 1%	
Signal-to-noise ratio	> 92 dB (A)	
Power supply	External power adapter, 100 - 240 V ~ 50/60 Hz	



Operating voltage/current	12 V $\overline{=}$ / min. 500 mA, polarity: Centre positive	
Dimensions (W × H × D)	150 mm × 35 mm × 118 mm	
Weight	180 g	
Ambient conditions	Temperature range	0 °C...40 °C
	Relative humidity	20%...80% (non-condensing)

## 6.2 Bodypack transmitter

Frequency range	863 MHz...865 MHz
Max. transmission power	10 mW
Maximum input level	0 dBu
Bandwidth	200 kHz
Modulation type	Frequency modulation (FM)
Input impedance	470 K $\Omega$
Range in clear field of vision	40 m
NF frequency response	70 Hz...15 kHz ( $\pm$ 3 dB)

## Technical specifications

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Total harmonic distortion	< 0.8%	
Battery	Battery type	2 × round cell batteries (AA, LR06) or comparable rechargeable batteries
	Voltage	1.5 V
	Operating time	Up to 8 h (with alkaline cells)
Dimensions (W × H × D), without antennas	65 mm × 105 mm × 23 mm	
Dimensions (W × H × D), with antennas	65 mm × 170 mm × 23 mm	
Weight	77 g	
Ambient conditions	Temperature range	0 °C...40 °C
	Relative humidity	20%...80% (non-condensing)

## 6.3 Handheld microphone

Frequency range	863 MHz...865 MHz	
Max. transmission power	10 mW	
Maximum input level	+0 dBV	
Bandwidth	200 kHz	
Modulation type	Frequency modulation (FM)	
Input impedance	Microphone	5 K $\Omega$
	Guitar	760 k $\Omega$
Range in clear field of vision	40 m	
NF frequency response	70 Hz... 15 kHz ( $\pm 3$ dB)	
Total harmonic distortion	< 1%	
Battery	Battery type	2 $\times$ round cell batteries (AA, LR06) or comparable rechargeable batteries
	Voltage	1.5 V
	Operating time	Up to 8 h (with alkaline cells)
Dimensions (L $\times$ $\emptyset$ )	245 mm $\times$ 53 mm	

## Technical specifications

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Weight	200 g	
Ambient conditions	Temperature range	0 °C...40 °C
	Relative humidity	20%...80% (non-condensing)

## 7 Plug and connection assignment

### Introduction

This chapter will help you select the right cables and plugs to connect your valuable equipment in such a way that a perfect sound experience is ensured.

Please note these advices, because especially in 'Sound & Light' caution is indicated: Even if a plug fits into the socket, an incorrect connection may result in a destroyed power amp, a short circuit or 'just' in poor transmission quality!

### Balanced and unbalanced transmission

Unbalanced transmission is mainly used in semi-professional environment and in hifi use. Instrument cables with two conductors (one core plus shielding) are typical representatives of the unbalanced transmission. One conductor is ground and shielding while the signal is transmitted through the core.

Unbalanced transmission is susceptible to electromagnetic interference, especially at low levels, such as microphone signals and when using long cables.

In a professional environment, therefore, the balanced transmission is preferred, because this enables an undisturbed transmission of signals over long distances. In addition to the conductors 'Ground' and 'Signal', in a balanced transmission a second core is added. This also transfers the signal, but phase-shifted by 180°.

Since the interference affects both cores equally, by subtracting the phase-shifted signals, the interfering signal is completely neutralized. The result is a pure signal without any noise interference.

## 1/4" TS phone plug (mono, unbalanced)



1	Signal
2	Ground, shielding

## Three-pole 1/8" mini phone jack (stereo, unbalanced)



1	Signal (left)
2	Signal (right)
3	Ground, shielding

## 8 Troubleshooting

In the following we list a few common problems that may occur during operation. We give you some suggestions for easy troubleshooting:

Symptom	Remedy
No sound	1. Check the power supply of the transmitter and receiver.
	2. Make sure the transmitter and receiver are operating in the same frequency range. The frequency can be found on the devices.
	3. Test the connection between the receiver and the connected audio device (amplifier, mixer). Is the connected audio device turned on and does the signal level on the output of the receiver match the input requirements of the audio device?
	4. See if the audio transmission works when you move the transmitter closer to the receiver.
	5. Make sure that no metal objects near the transmitter or receiver are obstructing the transmission.
Transmission is interrupted	1. Modify the orientation of the antenna.
	2. If you are using more than one wireless system at the same time, check the used frequencies and channels.

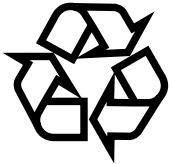
Symptom	Remedy
	3. Interference can also be caused by televisions, radios or mobile phones.
The sound is distorted	Change the position of the sensitivity selection switch on the transmitter or the <i>[VOLUME]</i> control settings on the receiver.

If the procedures recommended above do not succeed, please contact our Service Center. You can find the contact information at [www.thomann.de](http://www.thomann.de).



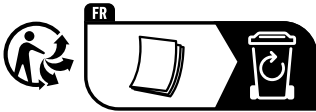
## 9 Protecting the environment

### Disposal of the packing material



Environmentally friendly materials have been chosen for the packaging. These materials can be sent for normal recycling. Ensure that plastic bags, packaging, etc. are disposed of in the proper manner.

Do not dispose of these materials with your normal household waste, but make sure that they are collected for recycling. Please follow the instructions and markings on the packaging.



Observe the disposal note regarding documentation in France.

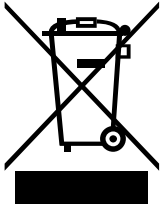
### Disposal of batteries and rechargeable batteries



Do not dispose of batteries and rechargeable batteries with normal household waste, but in accordance with the local regulations for the disposal of hazardous waste. Use the available collection sites or contact your local waste disposal facility.

Before disposing of your old device, remove the batteries if this is possible without destroying it.

### Disposal of your old device



This product is subject to the European Waste Electrical and Electronic Equipment Directive (WEEE) as amended.

Do not dispose of your old device with your normal household waste; instead, deliver it for controlled disposal by an approved waste disposal firm or through your local waste facility. If in doubt, consult your local waste management facility. You can also return the device to a retailer if they offer to take the device back for free or if they are legally obliged to do so. When disposing of the device, comply with the rules and regulations that apply in your country. You can also return your old device to Thomann GmbH at no charge. Check the current conditions on [www.thomann.de](http://www.thomann.de).

Proper disposal protects the environment as well as the health of your fellow human beings. This is because the proper handling of old devices negates the potential negative effects of hazardous substances, and because it conserves resources by recycling them.

Also note that waste avoidance is a valuable contribution to environmental protection. Repairing a device or passing it on to another user is an ecologically valuable alternative to disposal. For example, use the classified ads of Thomann GmbH.

If your old device contains personal data, delete those data before disposing of it.



