the t.bone
audio experience

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

User Manual

UHF Wireless System

Thomann GmbH
Hans-Thomann-Straße 1
96138 Burgebrach
Germany
Telephone: +49 (0) 9546 9223-0
Internet: www.thomann.de

22.04.2024, ID: 312567, 312570, 312569, 312558, ... (V2)

Table of contents


t.bone
TWS ONE PT
UHF Bodypack Transmitter
t.bone
TWS ONE HT

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*.

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
DANGER!	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.
NOTICE!	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 – 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.

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!

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). As a precaution, disconnect the power supply from the power grid when storms are approaching or it the device will not be used for a longer period.

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 contained in the rubber feet of this product may react with the coating of the floor and cause permanent dark stains after some time. If necessary, use a suitable mat or felt slide to prevent direct contact between the device's rubber feet and the floor.

3 Features and scope of delivery

TWS One A Lapel (item no. 312558)

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

Your UHF wireless system TWS One Lapel 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)
  - Energy supply: 12 V ⎓ (DC)
- Bodypack transmitter TWS One PT
  - Suitable for wearing on a belt or for attachment to the guitar strap
  - Input: 3.5-mm audio socket (unbalanced)
  - Energy supply: 2 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, carrying case

The system can be operated free of charge and registration in Europe. Two systems can be operated simultaneously. The transmission range of the system under normal conditions is approximately 50 metres. The system operates at a fixed frequency of 863,100 MHz.

TWS One A/B/C/D Vocal (item no. 312562, 312563, 312564, 312566)

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

Your UHF wireless system TWS One Vocal 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)
  - Energy supply: 12 V ⎓ (DC)
- Handheld transmitter TWS One HT
  - Dynamic microphone
  - Slide switch to turn the microphone on and off
  - Energy supply: 2 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, carrying case

The system can be operated free of charge and registration in Europe. Two systems can be operated simultaneously. The transmission range of the system under normal conditions is approximately 50 metres. The system operates at a fixed frequency according to the following table:

System description	Used frequency (MHz)
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 (item no. 312567, 312569, 312570)

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

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)
  - Energy supply: 12 V ⎓ (DC)
- Bodypack transmitter TWS One PT
  - Suitable for wearing on a belt or for attachment to the guitar strap
  - Input: 3.5-mm audio socket (unbalanced)
  - Energy supply: 2 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, carrying case

The system can be operated free of charge and registration in Europe. Two systems can be operated simultaneously. The transmission range of the system under normal conditions is approximately 50 metres. The system operates at a fixed frequency according to the following table:

System description	Used frequency (MHz)
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

First, connect the power supply to the receiver and then plug the power supply into the power outlet.

Connecting audio and starting up

Connect the audio output of the receiver to your mixer or your amplifier.

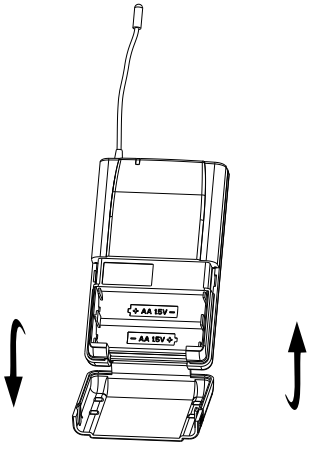
Start with the following volume control setting:

- If you are using a microphone input of your mixer, turn the knob to about 1 o'clock.
- If you are using a line input of your mixer, turn the knob clockwise all the way to the stop.

To get the best sound quality, a fine adjustment of the controller may be required.

4.3 Bodypack transmitter

Inserting batteries into the receiver



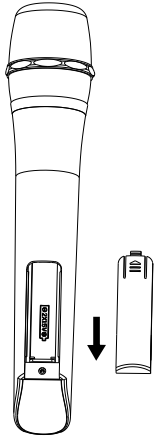
1. Make sure that the transmitter is turned off, the main switch is in ‘OFF’ position.
2. Open the battery compartment cover by pressing on the side latches.
3. Insert the batteries. Pay attention to the correct location of the poles.
4. Close the battery compartment and turn on the transmitter. Slide the power switch to the 'ON' position. The LED lights up briefly.

Connecting the microphone to the transmitter

1. Make sure that the transmitter is turned off, the main switch is in 'OFF' position.
2. Plug the 3.5 mm phone plug of the microphone into the input socket of the transmitter.
3. Turn on the transmitter and check the transmission by speaking of singing. If necessary, toggle the sensitivity switch on the transmitter or adjust the level on the receiver, your mixer or your amplifier.

4.4 Handheld transmitter

Inserting batteries in the transmitter

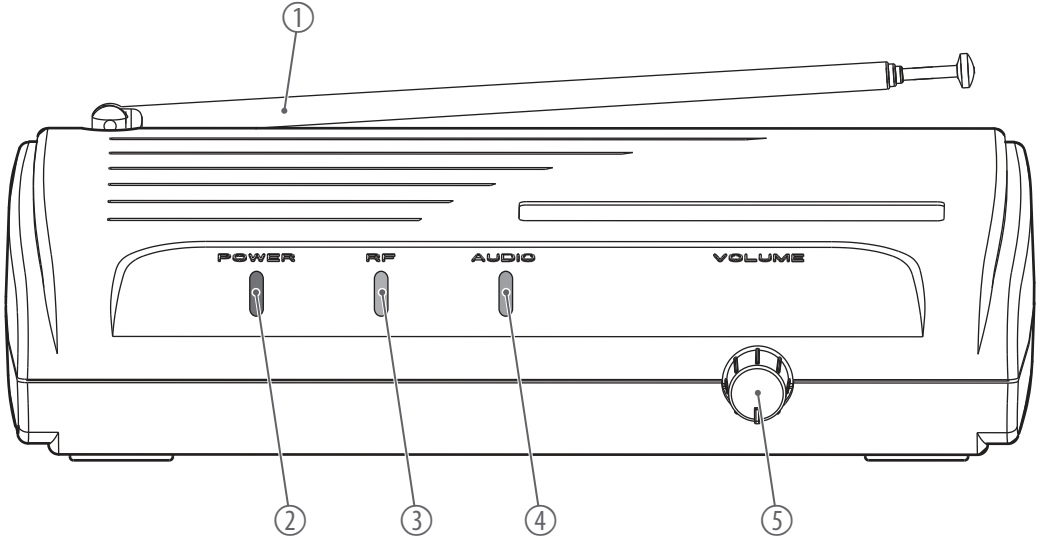


1. Make sure that the transmitter is turned off, the main switch is in 'OFF' position.
2. Open the battery compartment cover by pressing on the fastening and sliding it down.
3. Insert the batteries. Pay attention to the correct location of the poles.
4. Close the battery compartment and switch the transmitter on. Slide the power switch to the "ON" position. The LED lights up briefly.
5. Turn on the transmitter and check the transmission by speaking or singing. If necessary, adjust the level on the receiver, on your mixing console or your amplifier.

5 Connections and controls

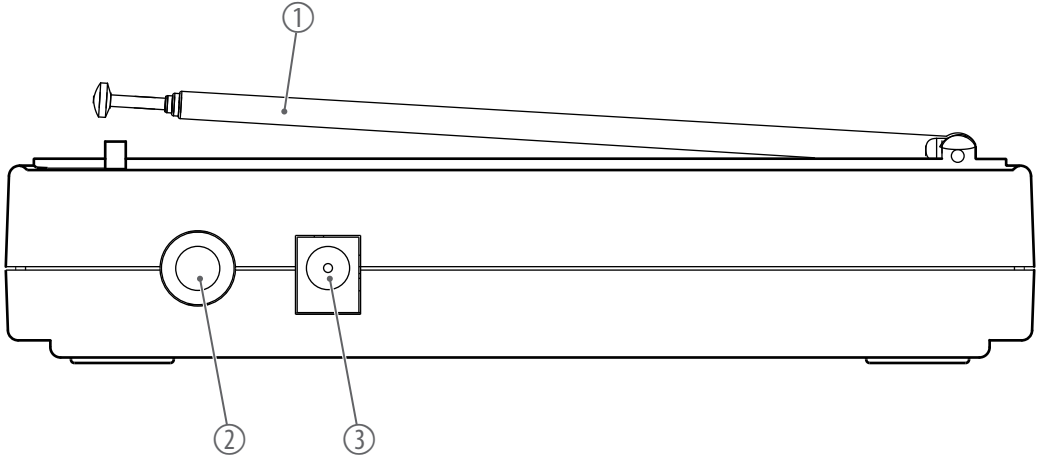
5.1 Receiver

Front panel



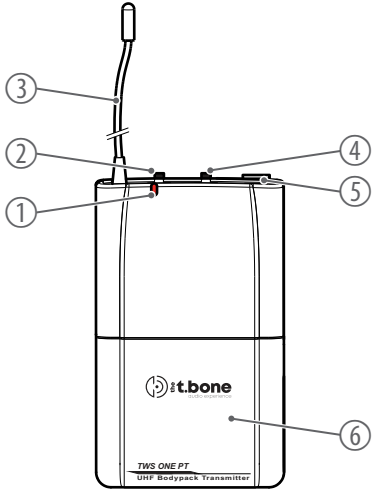
1	Rotating and swivelling antenna.
2	*[POWER]* | The LED lights red when the device is powered and ready for use.
3	*[RF]* | The LED lights up orange when there is a radio connection to the transmitter.
4	*[AUDIO]* | The indicator lights green when an audio signal is received.
5	*[VOLUME]* | Rotary control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

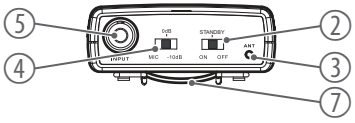
Rear panel

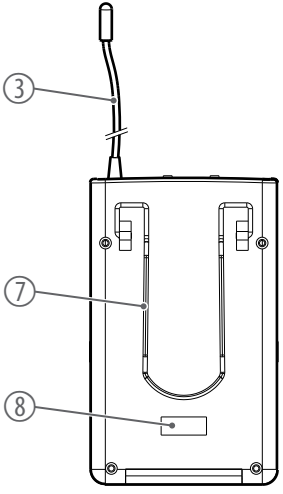


1	Rotating and swivelling antenna.
2	*[AUDIO OUT]* | 6.35-mm jack socket as unbalanced audio signal output for direct connection to a mixer, an amplifier or recording device.
3	*[DC IN]* | Socket for connecting the supplied power adapter. If you are using a different power supply, observe the correct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

5.2 Bodypack transmitter

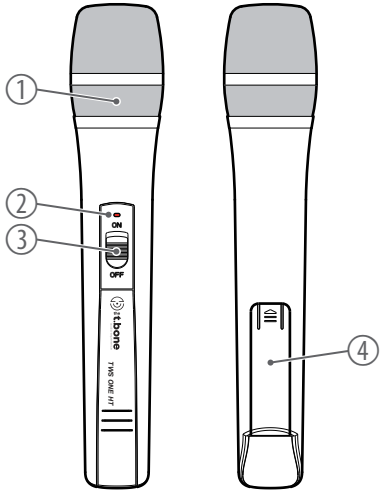






1	Indicator LED. Displays the state of the batteries. If you turn on the transmitter, the LED lights up briefly, indicating that the batteries still provide sufficient voltage. If the LED lights up continuously, the batteries are depleted. In this case, you should replace the batteries or charge the rechargeable batteries.
2	Main switch. Turns the device on (“ON”), mute (“STANDBY”) or completely off (“OFF”).
3	Antenna
4	Sensitivity selector switch with the following positions: ■ *[MIC]*: Suitable for microphones ■ *[0dB]*: Suitable for guitars with passive pickups ■ *[-10dB]*: Suitable for guitars with active pickups
5	3.5-mm audio socket (mono) for the microphone or instrument cable
6	Battery compartment for two round cell batteries (AA, LR6), 1.5 V or comparable rechargeable batteries
7	Retaining clamp
8	Indication of the frequency range in which the device operates. The indication here must match the information on the bottom of the receiver.

5.3 Handheld transmitter



1	Microphone capsule
2	Indicator LED | Indicates 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. Turns the device on (“ON”) or off (”OFF”).
4	Battery compartment for two round cell batteries (AA, LR6), 1.5 V or comparable rechargeable batteries. Inside the battery compartment is a sticker with the indication of the frequency range in which the device operates. The indication here 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	
Input connections	Power supply	12-V power adapter
Output connections	Audio	1× 6.35-mm jack socket, unbalanced
Output level adjustment	–18 dBV at a load of 3 kΩ	
Output impedance	1 kΩ	
Frequency range	UHF band (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	12 V ⎓ / 500 mA	
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

Input connections	1× 3.5-mm jack socket
Frequency range	UHF band (863 MHz…865 MHz)
Max. transmission power	10 dBm
Maximum input level	> 1,200 mV
Bandwidth	200 kHz
Modulation type	Frequency modulation (FM)
Input impedance	470 KΩ
Range in clear field of vision	40 m

Battery	Battery type	2 round cell batteries (AA LR06)
	Voltage	1.5 V
	Operating time	> 8 h
Dimensions (W × H × D), without antenna	65 mm × 105 mm × 23 mm	
Dimensions (W × H × D), with antenna	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 transmitter

Frequency range	UHF band (863 MHz…865 MHz)
Max. transmission power	10 dBm
Maximum input level	+0 dBV
Bandwidth	200 kHz
Modulation type	Frequency modulation (FM)

Input impedance	Microphone	5 KΩ
	Guitar	760 kΩ
Range in clear field of vision	40 m	
NF frequency response	70 Hz…15 kHz (±3 dB)	
Total harmonic distortion	< 1%	
Battery	Battery type	2 round cell batteries (AA LR06)
	Voltage	1.5 V
	Operating time	> 8 h
Dimensions (L × Ø)	245 mm × 53 mm	
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:

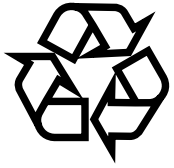
Symptom	Remedy
No sound	1. Check the power supply of the transmitter and receiver.
	2. Make sure the transmitter and receiver are operating in the same frequency range. The frequency can be found on the devices.
	3. Test the connection between the receiver and the connected audio device (amplifier, mixer). 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 *[VOLUME]* 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*.

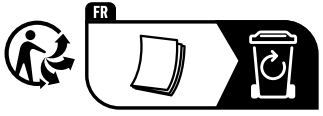
9 Protecting the environment

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.

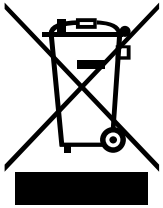
Disposal of batteries

Batteries must not be thrown away or burnt, but must instead be disposed of in line with the local regulations on the disposal of hazardous waste. Use the available collection sites.

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

Dispose of the batteries or rechargeable batteries at suitable collection points or through your local waste facility.

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*.

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.

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