the t.bone

free solo HT

UHF wireless system

thomann
MUSIC IS OUR PASSION

user manual

Musikhaus Thomann e.K.
Treppendorf 30
96138 Burgebrach
Germany
Telephone: +49 (0) 9546 9223-0
E-mail: info@thomann.de
Internet: www.thomann.de

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1 General notes

This user manual contains important information on safe operation of the device. Read and follow all safety notes and all instructions. Save this manual for future reference. Make sure that it is available to all persons using this device. If you sell the device, include the manual for the next owner.

Our products are subject to a process of continuous development. We therefore reserve the right to make changes without notice.

Symbols and signal words

This section provides an overview of the symbols and signal words used in this user manual.

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!

Danger for children

Ensure that plastic bags, packaging, etc. are disposed of properly and are not within reach of babies and young children. Choking hazard!

Ensure that children do not detach any small parts (e.g. knobs or the like) from the unit. They could swallow the pieces and choke!

Never let children unattended use electrical devices.

NOTICE!

Operating conditions

This device has been designed for indoor use only. To prevent damage, never expose the device to any liquid or moisture. Avoid direct sunlight, heavy dirt, and strong vibrations.

NOTICE!

External power supply

The device is powered by an external power supply. Before connecting the external power supply, ensure that the input voltage (AC outlet) matches the voltage rating of the device and that the AC outlet is protected by a residual current circuit breaker. Failure to do so could result in damage to the device and possibly the user.

Unplug the external power supply before electrical storms occur and when the device is unused for long periods of time to reduce the risk of electric shock or fire.

NOTICE!

Risk of fire due to incorrect polarity

Incorrectly inserted batteries may destroy the device or the batteries.

Ensure that proper polarity is observed when inserting batteries.

NOTICE!

Possible damage by leaking batteries

Leaking batteries can cause permanent damage to the device.

Take batteries out of the device if it is not going to be used for a longer period.

3 Features

The UHF Wireless System is especially suited for professional audio transmission, for example at events, on rock stages and concert podiums, in theatres, musicals and discos.

Your UHF Wireless System free solo HT is comprised of the following components:

- 9.5" diversity receiver
  - Two antennas for optimum reception quality
  - Automatic frequency scanning
  - Infrared interface for the transfer of the frequency selection from the receiver to the transmitter
  - Very high sensitivity at very high Signal-to-Noise Ratio
  - Adjustable Squelch
  - Outputs: XLR, 1/4" phone socket
  - Mounting brackets for mounting in a 19" rack
  - Operating voltage supply: DC 12 V ⎓, a suitable power supply is included
- Transmitter: battery powered handheld cardioid microphone

The system operates with pre-programmed frequency groups and one configurable frequency group (user bank). The following table shows the available pre-programmed groups and the number of pro-programmed frequencies. One channel is available in the configurable frequency group.

Model	Pre-programmed frequency groups	Number of available channels
the t.bone free solo HT 600 MHz (item no. 296161)	14	15
the t.bone free solo HT 740 MHz (item no. 296199)	3	12
the t.bone free solo HT 823 MHz (item no. 296196)	8	8
the t.bone free solo HT 863 MHz (item no. 296197)	1	3
the t.bone free solo HT 1.8 GHz (item no. 323200)	16	12

4 Installation and starting up

4.1 General information

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

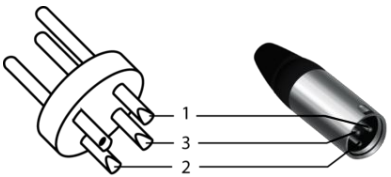
Establish all connections as long as the unit is switched off. Use the shortest possible high-quality cables for all connections.

Notes on wireless transmission

- This device utilizes frequencies that are not harmonized within the European Union (EU) and therefore may only be used in certain EU member states. In all European countries, the frequencies used for the transmission of audio signals are strictly regulated. Before you start, make sure the frequencies are allowed in the respective country and check whether the operation must be reported to the appropriate authority.
- Make sure that transmitter and receiver are both tuned to the same channel.
- Never set multiple transmitters to the same channel.
- Make sure that there are no metal objects between the transmitter and receiver.
- Avoid interference from other radio or in-ear systems.

4.2 Receiver

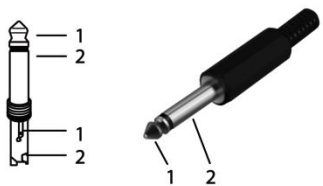
XLR connection for signal output on the receiver



An XLR chassis socket serves as signal output on the receiver. Drawing and table indicate the XLR pin assignment (balanced wiring).

1	Ground, shielding
2	Positive signal (+)
3	Negative signal (–)

Phone plug for signal output on the receiver



A 1/4" phone socket (TS) serves as signal output on the receiver. Drawing and table indicate the pin assignment of a suitable plug.

1	Signal
2	Ground, shielding

Rack mounting

The device is 19" rack mountable, it occupies 1 rack unit (RU). Necessary mounting material is enclosed.

Connecting the power supply

NOTICE!

External power supply

The device is powered by an external power supply. Before connecting the external power supply, ensure that the input voltage (AC outlet) matches the voltage rating of the device and that the AC outlet is protected by a residual current circuit breaker. Failure to do so could result in damage to the device and possibly the user.

Unplug the external power supply before electrical storms occur and when the device is unused for long periods of time to reduce the risk of electric shock or fire.

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

Mounting antennas

Attach the supplied antennas to the rear panel of the receiver. To improve transmission quality and to adapt to the spatial conditions the antennas are rotatable and swivelling.

If the space for the direct mounting of the antennas on the unit is not sufficient, for example, because of restricted space in the rack, you can use the optional coaxial cable to mount the antennas separated from the unit. For larger configurations with up to four receivers, the usage of the optional antenna distributor is appropriate.

Audio connection and starting up

Connect one of the audio outputs of the receiver to your mixing console or amplifier. Make sure that only one of both output is used at a time. Otherwise, malfunction may occur.

4.3 Transmitter

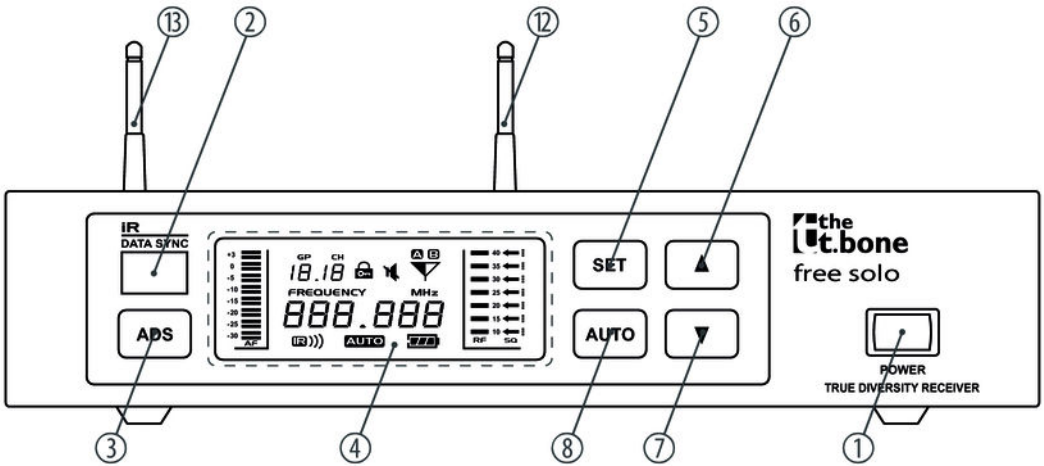
Inserting batteries into the transmitter

Unscrew the lower housing part of the handheld microphone. Insert the batteries respecting the correct polarity as indicated in the battery compartment. Close the battery compartment, refit the lower housing part and tighten the screws, then turn the transmitter on.

5 Connections and operating elements

5.1 Receiver

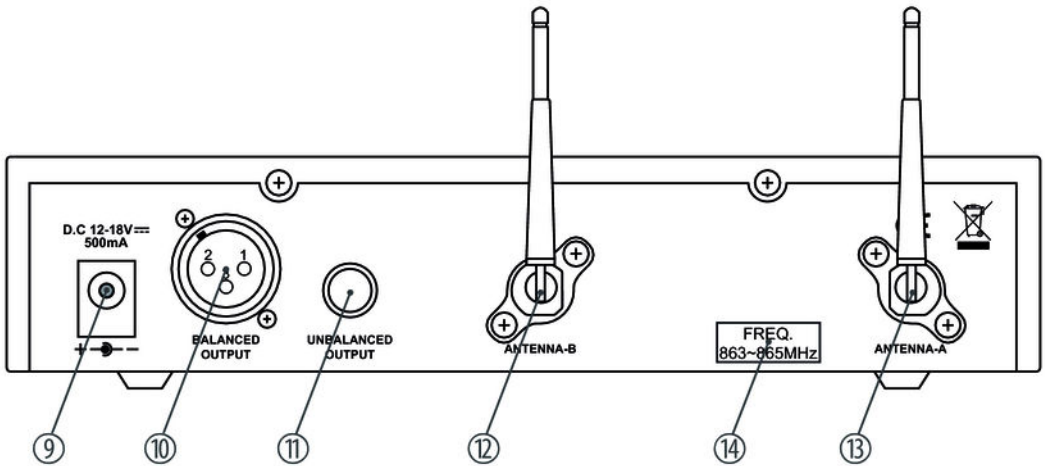
Front panel



1	**POWER** Press the button for several seconds to turn the unit on or off. All previous settings are saved even if you turn off the power and disconnect the unit from the mains.
2	Infrared sensor.
3	*[ADS]* button Starts the synchronization of the settings with the transmitter.
4	Display.
5	*[SET]* button Opens up the menu.
6	▲ button Increases the displayed value by one.
7	▼ button Decreases the displayed value by one.

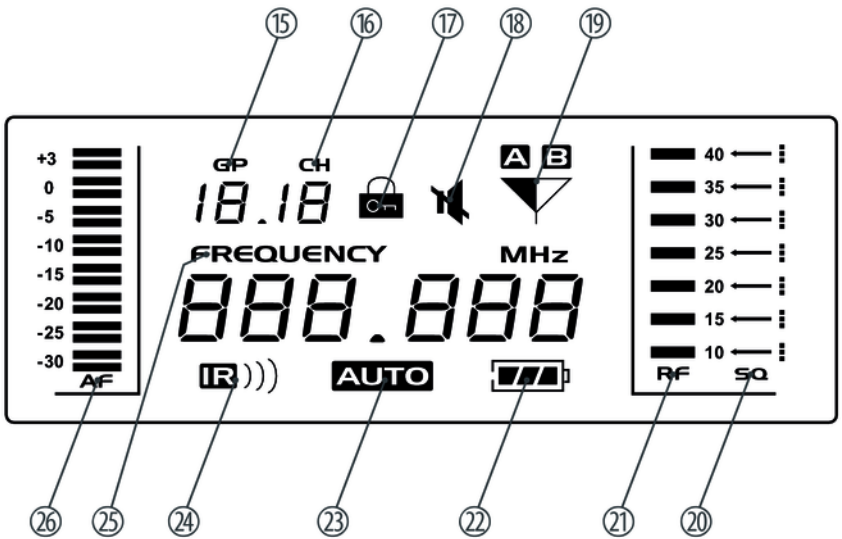
8	*[AUTO]* button Starts the automatic search for a free channel.
12, 13	Calibrated UHF antennas. The receiver evaluates the radio signal received by both antennas and selects the signal with the higher quality for further processing.

Rear panel


D.C 12-18V⎓
500mA
2
1
3
BALANCED
OUTPUT
UNBALANCED
OUTPUT
ANTENNA-B
FREQ.
863~865MHz
ANTENNA-A
⑨
⑩
⑪
⑫
⑭
⑬

9	**DC 12-18V** Socket to connect the supplied mains adapter. If you use a different power supply, observe the correct voltage, the polarity of the plug and the power consumption.
10	**BALANCED OUTPUT** XLR chassis connector as balanced audio signal output for direct connection to a mixer, a power amplifier or recording device.
11	**UNBALANCED OUTPUT** 1/4" phone socket as unbalanced audio signal output for direct connection to a mixer, a power amplifier or recording device.
12, 13	**ANTENNA-B**, **ANTENNA-A** Calibrated UHF antennas. The receiver evaluates the radio signal coming from both antennas and selects the signal with the higher quality for further processing.
14	Indication of the frequency range in which the device operates. The indication here must match the specification on the transmitter.

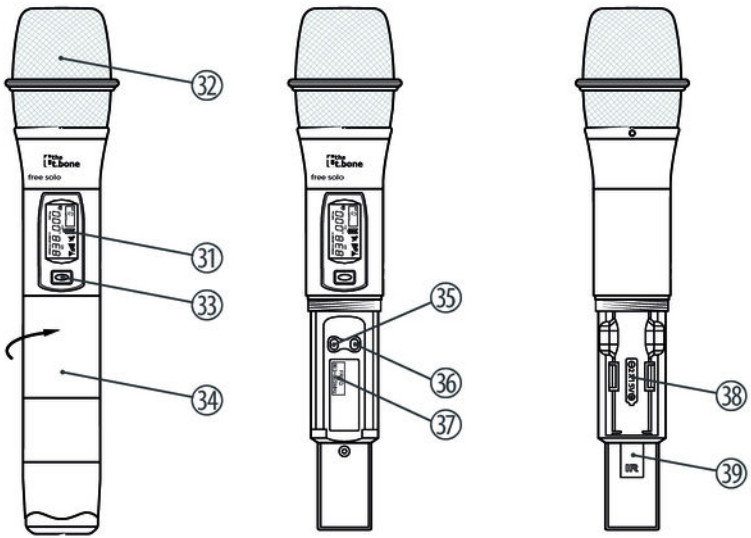
Display


15
16
17
18
19
+3
0
-5
-10
-15
-20
-25
-30
AF
GP
CH
18.18
A
B
FREQUENCY
MHz
888.888
IR
AUTO
40
35
30
25
20
15
10
RF
SQ
26
25
24
23
22
21
20

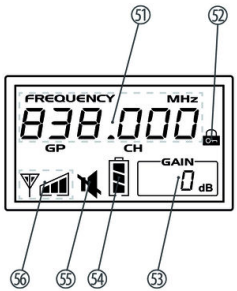
15	**GP** Indicates the selected frequency group.
16	**CH** Indicates the selected channel.
17	🔒 Indicates that the unit is locked to prevent unintentional operation.
18	🔇 Indicates that the unit is muted.
19	**A/B** Indicates which of both antennas is currently used for signal transmission.
20	**SQ** Displays the adjusted level of the squelch for the radio signal. A too high squelch level reduces the dynamics of the system.
21	**RF** Indicates the level of the received radio signal.

22	Shows the battery status of the transmitter from which the device is currently receiving a signal.
23	**AUTO** Indicates that the automatic search for a free channel is running.
24	**IR** Indicates that an IR signal is received.
25	**FREQUENCY** Indication of the frequency that is assigned to the set combination of frequency group and channel.
26	**AF** Audio level indicator.

5.2 Transmitter



31	Display.
32	Microphone grille to prevent damage and to reduce wind and breath noise.
33	Main switch Press the button for several seconds to turn the unit on or off. Briefly press the button to mute or unmute the microphone.
34	Bottom housing part. Unscrew to open.
35	**SET** button Opens up the menu.
36	**SEL** button Selects a menu item.
37	Indication of the frequency range in which the device operates. The indication here must match the specification on the rear panel of the receiver.
38	Battery holder for two AA cells (LR06), 1.5 V, or equivalent rechargeable batteries.
39	Infrared sensor.



51	**FREQUENCY** / **GP** / **CH** Depending on the selected menu item: ■ Indication of the frequency that is assigned to the set combination of frequency group and channel. ■ Indication of the set frequency group and the selected channel.
52	🔒 Indicates that the unit is locked to prevent unintentional operation.
53	**GAIN** Indicates the level of the transmitted radio signal.
54	Battery status display. Replace the batteries as soon as only one flashing cursor is left in the display. If the voltage of the batteries drops even further, the transmitter will automatically shut off. The battery status is also shown on the receiver.

55	Indicates that the transmitter is muted. This is the case when transmitter and receiver operate on different frequencies, if the receiver does not receive a usable signal or if you have muted the transmitter by briefly pressing the main switch.
56	Indicates the output power.

6 Operating

6.1 Receiver

Selecting the frequency

1. Press *[SET]*.

   ⇨ The **GP** display is flashing.

2. Use the arrow keys to select the frequency group.

   Press *[SET]* to confirm the selection.

   ⇨ The **CH** display is flashing.

3. Use the arrow keys to select a channel within the selected frequency group.

   If you have selected the frequency group *'U'*, you can directly set the frequency using the arrow keys in steps of 25 kHz. First, set the value to the left of the decimal point, then press *[SET]* and after that set the value to the right of the decimal point.

   Press *[SET]* to confirm the selection.

⇨ The display indicates that the receiver is being calibrated to a new frequency. After a few seconds the display will return to the default state.

Synchronising transmitter and receiver

1. Open the transmitter to uncover the infrared sensor.
2. Press *[ADS]*. The **IR** display is flashing.
3. Within ten seconds, hold the infrared sensor of the transmitter close to the infrared interface of the receiver.
4. The **IR** display stops flashing when the synchronisation is successfully completed.

   ⇨ After three seconds, the display returns to the default state.

Setting the squelch

1. Press *[SET]* as long until the **SQ** area is flashing in the display.
2. Use the arrow keys to set the desired value. The current value is shown on the right side of the display.
3. Press *[SET]* to confirm the selection.

   ⇨ After three seconds, the display returns to the default state.

Automatic search for a free channel

1. Press *[AUTO]*.

   ⇨ The **AUTO** display is flashing, the display shows the number of available free channels.
2. Use the arrow keys to select one of the free channels.

   Press *[SET]* to confirm the selection.

   ⇨ After three seconds, the display returns to the default state.
3. If the system does not find a free channel within five seconds, it automatically returns to the default state.

Turning key lock on or off

1. Press *[SET]* as long until the 🔒 symbol appears.
   ⇨ All buttons are locked except the main switch.
2. To turn the key lock off, press ▲ as long until the 🔒 symbol disappears.
   ⇨ The buttons have regained their original function.

6.2 Transmitter

Unscrew the bottom housing part to get access to the operating buttons.

Frequency selecting

If you don't want to synchronise the transmitter via the infrared interface with the receiver, you can also set the transmission frequency manually in the configurable frequency group (user bank).

1. Press *[SET]* repeatedly until the value in the **GP** field of the display is flashing.
2. Use *[SEL]* to select the frequency group.

   Press *[SET]* to confirm the selection.

   ⇨ The digit in the **CH** field is flashing.
3. Use *[SEL]* to select a channel within the adjusted frequency group.

   If you have selected the frequency group 'U', you can directly set the frequency using *[SEL]*. First, set the value to the left of the decimal point, then press *[SEL]* and after that set the value to the right of the decimal point.

   Press *[SET]* to confirm the selection.

   ⇨ After a few seconds the display will return to the default state.

Setting transmission gain

1. Press *[SET]* repeatedly until the figure in the **GAIN** field is flashing.
2. Use *[SEL]* to adjust the transmission gain in increments of 3 dB (–9 dB, –6 dB, –3 dB, 0 dB, 3 dB).

   Press *[SET]* to confirm the selection. Press the main switch to exit the menu without any changes.

Setting transmitting power

1. Press *[SET]* repeatedly until the symbol is flashing in the display.
2. Use *[SEL]* to change the transmitting power (5 mW, 10 mW, 20 mW).

   Press *[SET]* to confirm the selection. Press the main switch to exit the menu without any changes.

Frequency group and channel display

1. Press *[SEL]*.
   ⇨ The display indicates the used frequency group und the used channel.
2. Press *[SEL]* or wait for five seconds to return to the default condition.

Turning key lock on

Press *[SEL]* as long until the 🔒 symbol appears.
⇨ All buttons are locked, except the main switch.

Turning key lock off

1. To turn the key lock off press *[SEL]* and then *[SET]*.
   ⇨ The 🔒 symbol is flashing.
2. Press *[SEL]* again and then *[SET]*.
3. Press *[SEL]* a third time and then *[SET]*.
   ⇨ The 🔒 symbol disappears. The buttons have regained their original function.

7 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 that both transmitter and receiver operate in the same frequency range. The frequency range is stated on the devices.
	3. Are both transmitter and receiver set to the same channel?
	4. Check the connection between the receiver and the connected audio device (amp, mixer). Is the connected audio device switched on and does the signal level on the output of the receiver match the input sensitivity of the audio device?
	5. Try to improve the transmission by moving the transmitter closer to the receiver.
	6. Make sure that no metal objects near the transmitter or receiver obstruct the transmission.
Transmission is disturbed	1. Modify the orientation of the antennas.
	2. If you use more than one wireless system at the same time, check the used frequencies and channels.
	3. Interference can also be caused by other radio or in-ear systems.

If the procedures recommended above do not succeed, please contact our Service Center. You can find the contact information at *www.thomann.de*.

8 Technical specifications

8.1 Transmitter

Carrier frequency	UHF band (600 MHz…1.8 GHz)
Frequency band	the t.bone free solo HT 600 MHz (item no. 296161): 596 MHz…620 MHz
	the t.bone free solo HT 740 MHz (item no. 296199): 740 MHz…752 MHz
	the t.bone free solo HT 823 MHz (item no. 296196): 823 MHz…832 MHz
	the t.bone free solo HT 863 MHz (item no. 296197): 863 MHz…865 MHz
	the t.bone free solo HT 1.8 GHz (item no. 323200): 1,7815 GHz…1,7955 GHz
Bandwidth	the t.bone free solo HT 600 MHz (Artikelnr. 296161): 24 MHz
	the t.bone free solo HT 740 MHz (Artikelnr. 296199): 12 MHz
	the t.bone free solo HT 823 MHz (Artikelnr. 296196): 9 MHz
	the t.bone free solo HT 863 MHz (Artikelnr. 296197): 3 MHz

	the t.bone free solo HT 1.8 GHz (item no. 323200): 140 MHz
Number of channels	the t.bone free solo HT 600 MHz (Artikelnr. 296161): 211
	the t.bone free solo HT 740 MHz (Artikelnr. 296199): 37
	the t.bone free solo HT 823 MHz (Artikelnr. 296196): 65
	the t.bone free solo HT 863 MHz (Artikelnr. 296197): 4
	the t.bone free solo HT 1.8 GHz (item no. 323200): 192
Switching bandwidth	25 kHz
Modulation type	Frequency modulation (FM)
Maximum transmission power	the t.bone free solo HT 600 MHz (item no. 296161): 20 mW
	the t.bone free solo HT 740 MHz (item no. 296199): 20 mW
	the t.bone free solo HT 823 MHz (item no. 296196): 20 mW
	the t.bone free solo HT 863 MHz (item no. 296197): 10 mW
	the t.bone free solo HT 1.8 GHz (item no. 323200): 20 mW
Spurious response rejection	> 55 dBc

Peak deviation	± 55 kHz
NF frequency response	60 Hz…18 kHz
THD	< 0.5 %
Signal-to-noise ratio	> 102 dB (A)
Operating supply voltage	2 × AA cells (LR06, 1.5 V) or equivalent rechargeable batteries
Battery life span	> 8 h (with alkaline cells)
Dimensions (L × D)	246 mm × 53 mm
Weight	250 g

8.2 Receiver

Outputs	XLR chassis plug, balanced 1/4" phone socket, unbalanced
Sensitivity	–102 dBm
NF frequency response	50 Hz…15 kHz (±3 dB)
THD	< 0.8 %
Signal-to-noise ratio	> 105 dB (A)
Operating supply voltage	DC 12 V ⎓
Dimensions (W × D × H, without antennas)	212 mm × 160 mm × 44 mm
Weight	900 g

Carrier frequency, frequency band, number of channels, bandwidth, switching bandwidth and modulation type of receiver and transmitter are identical.

9 Protecting the environment

Disposal of the packaging material

For the transport and protective packaging, environmentally friendly materials have been chosen that can be supplied to normal recycling.

Ensure that plastic bags, packaging, etc. are properly disposed of.

Do not just dispose these materials with your normal household waste, but make sure that they are fed to a recovery. Please follow the notes and markings on the packaging.

Disposal of batteries

Batteries must not be disposed of as domestic waste or thrown into fire. Dispose of the batteries according to national or local regulations regarding hazardous waste. To protect the environment, dispose of empty batteries at your retail store or at appropriate collection sites.

Disposal of your old device

This product is subject to the European Waste Electrical and Electronic Equipment Directive (WEEE). Do not dispose with your normal household waste.

Dispose this device through an approved waste disposal firm or through your local waste facility. When discarding the device, comply with the rules and regulations that apply in your country. If in doubt, consult your local waste disposal facility.