



**the  
t.bone**

IEM-75

UHF wireless system

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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
<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>CAUTION!</b>	This combination of symbol and signal word indicates a possible dangerous situation that can result in minor 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 – danger zone.

## 2 Safety instructions

### Intended use

This device is intended to be used for the wireless transmission of audio signals to earplugs. 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.



### **CAUTION!**

#### **Possible hearing impairment**

The use of earphones at high volume over a longer period of time can cause permanent hearing damage.

Adjust the output volume of your audio device to a medium value and use the earphones no longer than about one hour a day.



### **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 and scope of delivery

The UHF wireless system IEM-75 is suitable as in-ear monitoring system especially for professional events, on rock stages and in concert halls, theatres and musicals.

Your UHF wireless system IEM-75 consists of the following components:

- 9.5" stereo IEM transmitter 75T
  - Very high sensitivity at very high signal-to-noise ratio
  - Input: 2 × XLR / 1/4" phone combi socket
  - Output for headphones (1/4" phone jack) with adjustable volume
  - 19" rack-mountable
  - Operating voltage supply DC 12 V  $\overline{\text{---}}$
- Bodypack receiver IEM-75R
  - Output for earphones (3.5 mm mini phone jack) with adjustable volume
  - Operating voltage supply 2 × AA cells (LR6, 1.5 V)
- Earphone EP 3

Three systems can be operated simultaneously. The system operates with a carrier frequency in the range of 863 MHz to 865 MHz, divided into 16 channels. The system can be operated free of charge and registration in Europe.

Included accessories: 12 V power supply, hardware for rack mounting, and plastic case

## 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 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>.
- When operating, make sure that transmitter and receiver are set to the same channel.
- Never set more than one transmitter to the same channel.
- Make sure that no metal objects are located between transmitter and receiver.
- Avoid interference by other radio and in-ear systems.

## 4.2 Transmitter

### Rack mounting

The unit has been designed for rack mounting in a standard 19-inch rack; it occupies one rack unit.

## 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 adapter to the transmitter and then plug the power adapter into the power outlet.

## Attaching the antenna

Attach the included antenna to the rear panel of the transmitter. To improve the transmission quality and to adapt to the spatial conditions it is rotatable and swivelling.

### **Connecting audio and starting up**

Connect the audio inputs of the transmitter with suitable line outputs of your mixer or your amplifier. Set the controls for the input sensitivity (10) to a middle position first. In order to achieve optimum sound quality, fine adjustment of the controls may be required.

## **4.3 Receiver**

### **Inserting batteries into the receiver**

Open the lid of the battery compartment (22) by pressing on the side latches, flip the lid forward and insert the batteries. Pay attention to the correct location of the poles. Close the battery compartment and turn on the transmitter. The LED 'RF' (15) lights up briefly.



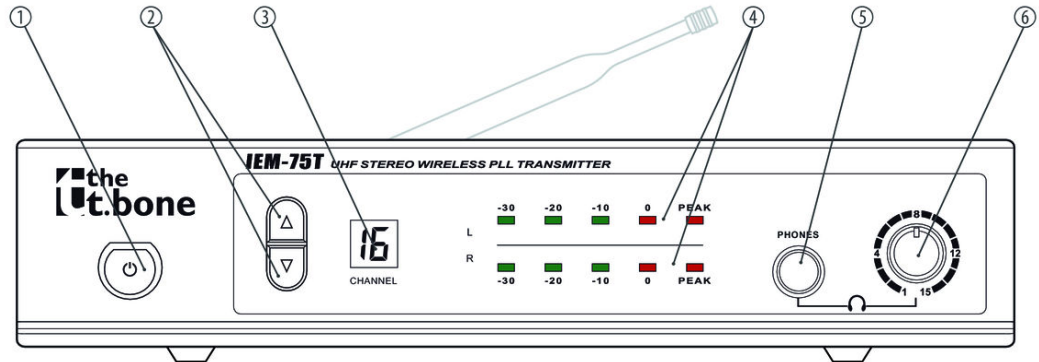
## 4.4 Taking system in operation

1. ▶ Make sure that the receiver is turned off, the main switch / volume control (17) is in 'OFF' position.
2. ▶ Attach the receiver with the clip to your belt or guitar strap.
3. ▶ Carefully insert the earplug into the ear canal, note the markings 'L' and 'R' for the left and right side.
4. ▶ Turn on the transmitter and the receiver and test the transmission. Make sure that transmitter and receiver are set to the same channel. If necessary, adjust the volume on the receiver, the input sensitivity of the transmitter and the levels on your mixing console or your amplifier.

## 5 Connections and operating elements

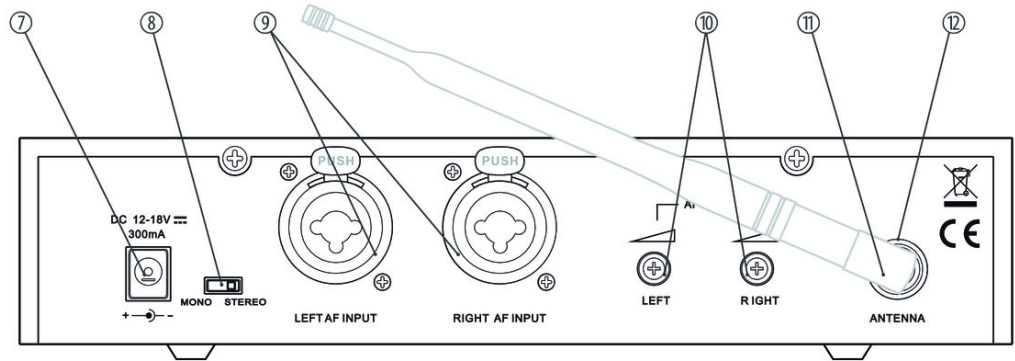
### 5.1 Transmitter

Front panel of transmitter



1	<b>POWER</b> Main switch. Turns the device on and off. To turn on, press this button for about one second.
2	▲ / ▼ Channel selection buttons.
3	<b>CHANNEL</b> Shows the number of the selected channel.
4	Level metre for the left and right channel.
5	<b>PHONES</b> Socket for connecting headphones.
6	Volume control for the headphone output.

## Rear panel of transmitter

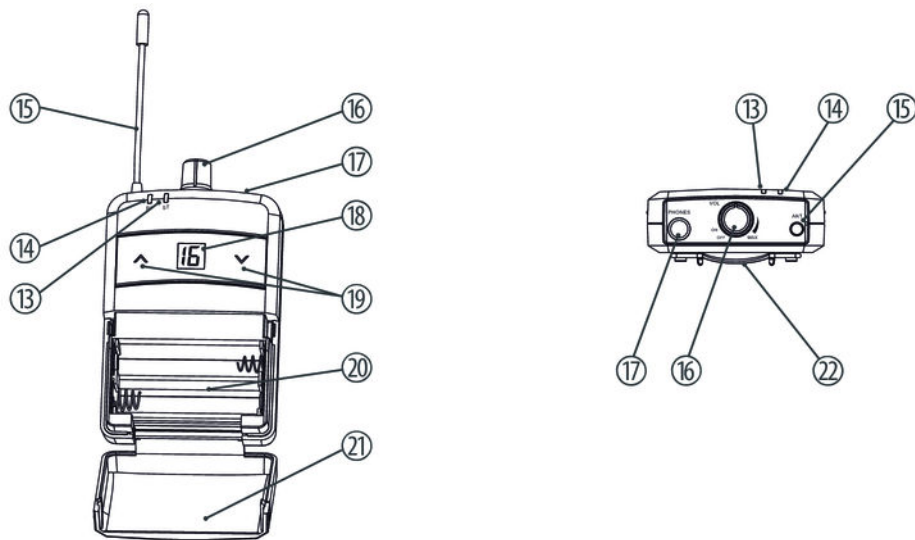


**7 DC**  
Socket for connecting the supplied AC adapter.

**8 MONO / STEREO**  
Switch for selecting the operating mode (mono or stereo).

9	<b>LEFT AF INPUT / RIGHT AF INPUT</b> XLR / 6,35 mm TRS combo jacks (left and right channel) for direct connection to a mixing console, PA or any other audio device that serves as signal source.
10	<b>AF LEVEL LEFT / RIGHT</b> Input sensitivity controls for the left and right channel.
11	UHF antenna.
12	<b>ANTENNA</b> BNC-type chassis socket for the supplied UHF antenna. Make sure that the frequency indicated on the antenna is within the range that is indicated on the transmitter.

## 5.2 Receiver



14	<b>LED ST</b> Indicates that a stereo signal is being transmitted on the radio link.
15	<b>LED RF</b> Lights up when the device receives a radio signal.
16	<b>ANT</b> Flexible antenna.
17	<b>VOL ON/OFF/MAX</b> Main switch and volume control. Turn this knob clockwise past the point of resistance to turn on the receiver. Turn it further to increase the volume. Turn this knob counter-clockwise to reduce the volume. Turn it further past the point of resistance to turn off the receiver.
18	<b>PHONES</b> 3.5 mm mini phone socket (stereo) for the earphones.
19	Display of the selected channel.
20	Rocker switch for selecting a channel.

- |    |  |
|----|--|
| 21 | Battery compartment for 2 AA cells (LR6, 1.5 V) or appropriate rechargeable batteries. |
| 22 | Battery compartment lid.   |
| 23 | Clip to attach the receiver to your belt or guitar strap.                              |



## 6 Operating

### 6.1 Setting up the transmitter

#### Channel selection

Use the or buttons ▲ or ▼ to increase or decrease the indicated value until the desired value is displayed.



*Transmitter and receiver must be set to the same channel.*

#### Selecting the operating mode

Use the switch **MONO/STEREO** on the rear panel to toggle between mono and stereo operation.

#### Adjusting input level

The transmitter displays the levels of the left and right channel in an LED chain. Set the controls for the input sensitivity so that the bar is used up to the value '0', but without exceeding this value.

## 6.2 Setting up the receiver

### Channel selection

Use the rocker switch ▲ or ▼ to increase or decrease the indicated value until the desired value is displayed.



*Transmitter and receiver must be set to the same channel.*

## 7 Technical specifications

### 7.1 Transmitter

Line input	2 × XLR / 1/4 phone combi socket (balanced)
Headphones output	1/4" phone socket (stereo)
Modulation type	Frequency modulation (FM)
Carrier frequency range	863 MHz...865 MHz
Number of channels	16
Transmission power	20 mW
Frequency swing	±40 kHz
Image frequency rejection	> 50 dBc
Maximum audio input level	+20 dBV
Audio frequency response	40 Hz...16 kHz

THD	< 1 % @ 1 kHz
Signal-to-noise ratio	> 86 dB (A-weighted)
Operating supply voltage	DC 12...18 V $\overline{\text{=}}$ , 300 mA, via supplied power adapter
Dimensions (W × D × H, without antenna)	212 mm × 95 mm × 44 mm
Weight	550 g

## 7.2 Receiver

Earphones output	3.5 mm mini phone socket (stereo)
Modulation type	Frequency modulation (FM)
Carrier frequency range	863 MHz...865 MHz
Number of channels	16
Frequency swing	±40 kHz

Image frequency rejection	> 50 dB
Sensitivity	> 90 dBm @ 30 dB SNR
Stereo channel separation	> 42 dB
Audio frequency response	40 Hz...16 kHz
THD	< 1 % @ 1 kHz
Signal-to-noise ratio	> 86 dB (A-weighted)
Dynamic range	> 80 dB
Audio output level	100 mW max.
Operating supply voltage	2 AA cells (LR6, 1.5 V) or appropriate rechargeable batteries
Operating time	> 8 h
Dimensions (W × D × H), without antenna)	105 mm × 23 mm × 64 mm
Weight (without batteries)	95 g

### 7.3 Frequency table

Channel 1	Channel 2	Channel 3	Channel 4	Channel 5	Channel 6	Channel 7	Channel 8
863.100 MHz	863.900 MHz	864.500 MHz	864.900 MHz	863.200 MHz	863.300 MHz	863.400 MHz	863.500 MHz
Channel 9	Channel 10	Channel 11	Channel 12	Channel 13	Channel 14	Channel 15	Channel 16
863.600 MHz	863.700 MHz	863.800 MHz	864.000 MHz	864.100 MHz	864.200 MHz	864.300 MHz	864.400 MHz

## 8 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" TRS phone plug (mono, balanced)



1	Signal (in phase, +)
2	Signal (out of phase, -)
3	Ground

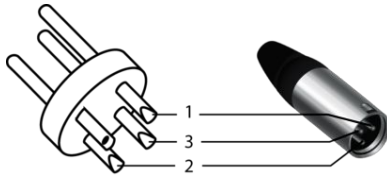
### Three-pole 1/8" mini phone jack (stereo, unbalanced)



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



**XLR plug (balanced)**



1	Ground, shielding
2	Signal (in phase, +)
3	Signal (out of phase, -)

## 9 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	<ol style="list-style-type: none"> <li data-bbox="624 238 1530 283">1. Check the power supply of transmitter and receiver.</li> <li data-bbox="624 285 1530 330">2. Are transmitter and receiver set to the same channel?</li> <li data-bbox="624 332 1530 473">3. Test the connection between the transmitter and the connected audio device (amplifier, mixer). Is the connected audio device turned on and does the signal level at the output of the audio device match to the input requirements of the transmitter?</li> <li data-bbox="624 476 1530 554">4. See if the sound transmission works when you move the receiver closer to the transmitter.</li> <li data-bbox="624 556 1530 630">5. Make sure that no metal objects near the transmitter or receiver obstruct the transmission.</li> </ol>
Transmission is interrupted.	<ol style="list-style-type: none"> <li data-bbox="624 632 1530 677">1. Modify the orientation of the antennas.</li> <li data-bbox="624 679 1530 758">2. If you use more than one wireless system at the same time, check the used frequency groups and channels.</li> <li data-bbox="624 760 1530 800">3. Interference can also be caused by televisions, radios or mobile phones.</li> </ol>

Symptom	Remedy
The sound is distorted.	<ol style="list-style-type: none"><li data-bbox="624 238 1527 283">1. Change the setting of the 'AF LEVEL' controls on the transmitter.</li><li data-bbox="624 285 1527 330">2. Check the charging level of the batteries in the receiver.</li></ol>

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).

## 10 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.



