

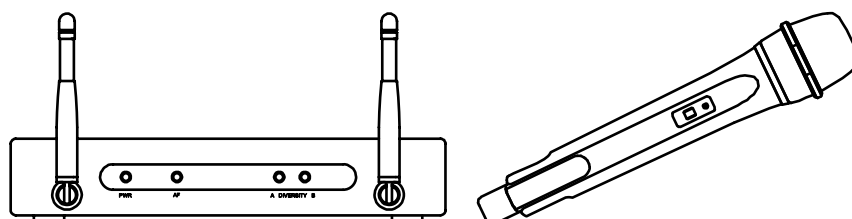
# WBS-200

WIRELESS BELT PACK SYSTEM



# WMS-100

WIRELESS HANDMIC SYSTEM



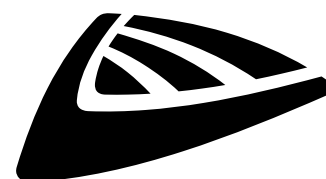
## ENGLISH

### Operation Manual

Other languages can be downloaded from:  
[WWW.JB-SYSTEMS.EU](http://WWW.JB-SYSTEMS.EU)



Version: 1.0



**JB SYSTEMS**



### **EN - DISPOSAL OF THE DEVICE**

Dispose of the unit and used batteries in an environment friendly manner according to your country regulations.

### **FR - DÉCLASSER L'APPAREIL**

Débarrassez-vous de l'appareil et des piles usagées de manière écologique Conformément aux dispositions légales de votre pays.

### **NL - VERWIJDEREN VAN HET APPARAAT**

Verwijder het toestel en de gebruikte batterijen op een milieuvriendelijke manier conform de in uw land geldende voorschriften.

### **DU - ENTSORGUNG DES GERÄTS**

Entsorgen Sie das Gerät und die Batterien auf umweltfreundliche Art und Weise gemäß den Vorschriften Ihres Landes.

### **ES - DESHACERSE DEL APARATO**

Reciclar el aparato y pilas usadas de forma ecologica conforme a las disposiciones legales de su país.

### **PT - COMO DESFAZER-SE DA UNIDADE**

Tente reciclar a unidade e as pilhas usadas respeitando o ambiente e em conformidade com as normas vigentes no seu país.

# ***OPERATION MANUAL***

Thank you for buying this JB Systems® product. To take full advantage of all possibilities, please read these operating instructions very carefully.

## **FEATURES**

This unit is radio-interference suppressed. This appliance meets the requirements of the current European and national guidelines. Conformity has been established and the relevant statements and documents have been deposited by the manufacturer.

- UHF wireless microphone system:
  - WMS-100: including WMIC-100 hand microphone
  - WBS-200: including WBP-200 belt-pack and lavalier microphone
- Belt-pack and hand microphone can both be used with rechargeable batteries!
- Belt-pack input with line/mic switch: can be used as guitar belt-pack!
- Diversity reception for better stability and avoid signal dropouts
- Adjustable squelch for stable reception, free from unwanted noise.
- Tone squelch for improved reliability.
- 16 selectable frequencies via PLL synthesizer: up to 6 sets can be used together
- Antennas on front panel for easy rack mounting
- Optional "RP-WMIC" 19" adapter available for rack mounting of 1 or 2 receivers
- Balanced XLR and unbalanced jack output
- Frequency range: 823-832/863-865MHz (free use in most European countries)

## **BEFORE USE**

- Before you start using this unit, please check if there's no transportation damage. Should there be any, do not use the device and consult your dealer first.
- **Important:** This device left our factory in perfect condition and well packaged. It is absolutely necessary for the user to strictly follow the safety instructions and warnings in this user manual. Any damage caused by mishandling is not subject to warranty. The dealer will not accept responsibility for any resulting defects or problems caused by disregarding this user manual.
- Keep this booklet in a safe place for future consultation. If you sell the fixture, be sure to add this user manual.
- To protect the environment, please try to recycle the packing material as much as possible.

### **Check the contents:**

Check that the carton contains the following items:

- User manual
- 1x WR-100 diversity receiver
- 1x mono jack/jack cable
- 1x mains DC power adapter
- WMS-100 system → 1x WMIC-100 wireless mic
- WBS-200 system → 1x WBS-200 belt pack + Lavalier mic + windscreen + tie-clip

## SAFETY INSTRUCTIONS:



**CAUTION**  
RISK OF ELECTRIC SHOCK  
DO NOT OPEN



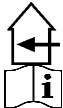
**CAUTION:** To reduce the risk of electric shock, do not remove the top cover. No user-serviceable parts inside. Refer servicing to qualified service personnel only.



The lightning flash with arrowhead symbol within the equilateral triangle is intended to alert the user or the presence of un-insulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



The exclamation point within the equilateral triangle is intended to alert the user to the presence of important operation and maintenance (servicing) instructions in the literature accompanying this appliance.



This symbol means: indoor use only



This symbol means: Read instructions



This symbol means: Safety Class II appliance

- To prevent fire or shock hazard, do not expose this appliance to rain or moisture.
- To avoid condensation to be formed inside, allow the unit to adapt to the surrounding temperatures when bringing it into a warm room after transport. Condense sometimes prevents the unit from working at full performance or may even cause damages.
- This unit is for indoor use only.
- Don't place metal objects or spill liquid inside the unit. No objects filled with liquids, such as vases, shall be placed on this appliance. Electric shock or malfunction may result. If a foreign object enters the unit, immediately disconnect the mains power.
- No naked flame sources, such as lighted candles, should be placed on the appliance.
- Prevent use in dusty environments and clean the unit regularly.
- Keep the unit away from children.
- Inexperienced persons should not operate this device.
- Maximum save ambient temperature is 40°C. Don't use this unit at higher ambient temperatures.
- Always unplug the unit when it is not used for a longer time or before you start servicing.
- The electrical installation should be carried out by qualified personal only, according to the regulations for electrical and mechanical safety in your country.
- Check that the available voltage is not higher than the one stated on the rear panel of the unit.
- The Mains socket inlet shall remain operable for disconnection from the mains.
- In order to avoid a hazard, the unit shall only be used with the AC-adaptor delivered with it. If the AC-adaptor is damaged, a same model adaptor shall be used only.
- No user serviceable parts inside.
- In the event of serious operating problems, stop using the appliance and contact your dealer immediately.
- Please use the original packing when the device is to be transported.
- Due to safety reasons it is prohibited to make unauthorized modifications to the unit.
- Take out the battery from transmitter, if the appliance has been not used for a longer period. This will avoid the damage resulting from a defective leaking battery.

### **FCC STATEMENT**

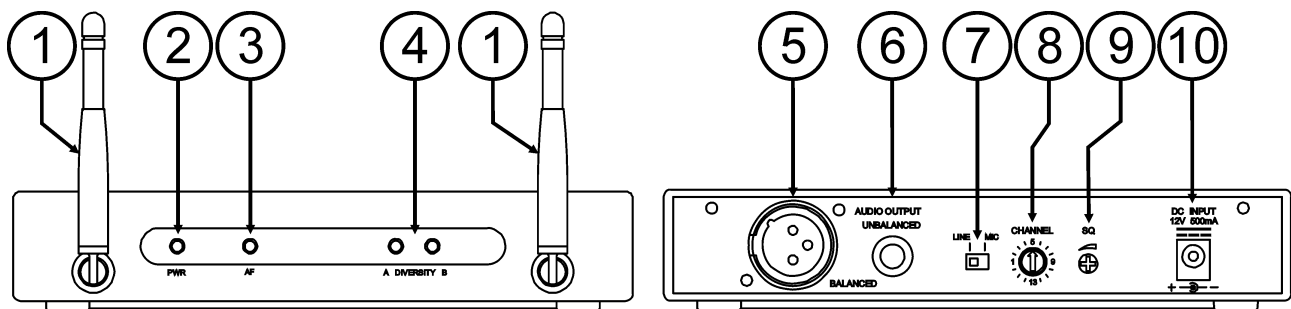
This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference
- This device must accept any interference received, including interference that may cause undesired operation

The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

**IMPORTANT NOTE:** To comply with the FCC RF exposure compliance requirements, no change to the antenna or the device is permitted. Any change to the antenna or the device could result in the device exceeding the RF exposure requirements and void user's authority to operate the device.

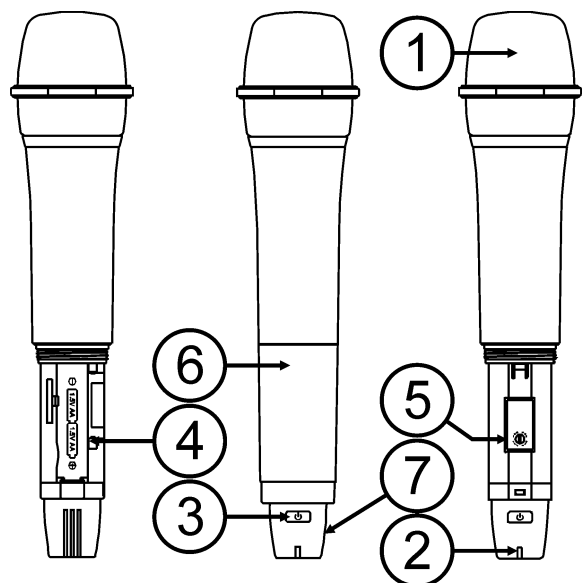
## RECEIVER FUNCTIONS



- Antennas:** Fixed-length UHF antennas permanently mounted on the front panel. Put these in vertical position during use.
- Power Indicator:** The indicator LED lights when the receiver is ready to operate.
- AF Indicator:** The indicator lights to indicate that an audio signal is received.
- Diversity A. B Indicators:** These LEDs lights to show which antenna currently receives the RF Signal.
- Balanced Output:** 3-pin XLR connector provides balanced low-impedance output. If your audio mixer is equipped with a balanced input, it's better to connect the receiver using this XLR-output. Don't forget to set the mic/line switch (7) in the desired position.
- Unbalanced Output:** Unbalanced 6.3mm mono jack audio output. Can be used to connect a guitar amplifier or any other unbalanced audio mixer input. Don't forget to set the mic/line switch (7) in the desired position.
- Mic/Line Switch:** used to select the output level of the XLR balanced connector or 6.3mm unbalanced phone jack. It can be set for microphone (-20dB) or line-level (0dB).
- Channel Selector:** Use this rotary switch to choose one of the 16 available channels. Note that the selected channel on the receiver should always be identical to that of the transmitter (hand mic or belt pack).
- Squelch Adj.:** to prevent unwanted and disturbing noises, the squelch mutes the audio output of the receiver when the detected RF-signals of the are too weak. With the squelch control you can determine the minimum RF-signal level before audio output is not suppressed anymore. Setting the squelch too high will reduce the range (max. distance) of the system. The squelch is already set in the factory so normally you don't need to change it. If you should adapt the squelch level for any reason, please set it to minimum before turning the receiver on and then slowly adjust using trial and error method.
- DC IN:** DC input connector for the supplied AC adapter.

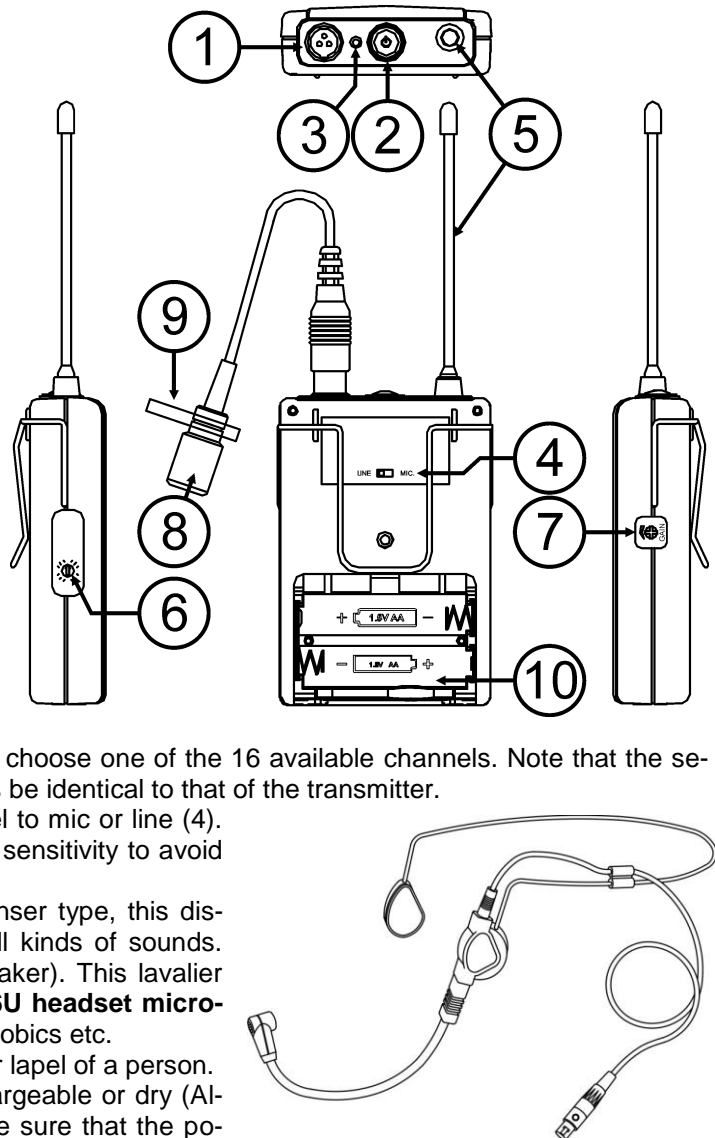
## HANDHELD MICROPHONE FUNCTIONS

- Grille:** Protects the unidirectional microphone capsule and helps reduce breath sounds and wind noises.
- Low Battery LED:** this LED indicates the battery life status. When the transmitter is switched ON:
  - LED is permanently on:** the battery is still in good condition.
  - LED flashes quickly:** indicates that the battery has insufficient power and should be changed soon.
  - LED fails to light:** the battery is either dead or not positioned correctly. You should correct the positioning or change the battery.
- On/off Switch:** press this button several seconds to turn transmitter power on/off.
- Battery Compartment:** Insert two AA rechargeable or dry (Alkaline) batteries into the compartment. Make sure that the polarity of batteries is correct.
- Channel Selector:** Use this rotary switch to choose one of the 16 available channels. Note that the selected channel on the receiver should always be identical to that of the transmitter.
- Battery Cover:** unscrew it gently and slide it down to open the battery compartment or have access to the channel selector (5).
- Antenna:** Built-in high gain helical antenna.



## BELT PACK FUNCTIONS

1. **Mini XLR Connector:** The included electret lavalier microphone (or optional headset) is inserted into this connector.
2. **On/off Switch:** press this button several seconds to turn transmitter power on/off.
3. **Low Battery LED:** this LED indicates the battery life status. When the transmitter is switched ON:
  - **LED is permanently on:** the battery is still in good condition.
  - **LED flashes quickly:** indicates that the battery has insufficient power and should be changed soon.
  - **LED fails to light:** the battery is either dead or not positioned correctly. You should correct the positioning or change the battery.
4. **MIC/LINE switch:** used to change the sensitivity or the mini XLR-input (1):
  - **MIC:** use this position when a headset or lavalier microphone is connected.
  - **LINE:** use this position when a line level unit (guitar, instrument, audio player, ...) is connected.
5. **Antenna:** Permanently connected helical antenna.
6. **Channel Selector:** Use this rotary switch to choose one of the 16 available channels. Note that the selected channel on the receiver should always be identical to that of the transmitter.
7. **Gain control:** first set the desired input level to mic or line (4). After this you can further fine-tune the input sensitivity to avoid signal overload (distortion).
8. **Lavalier Microphone:** unidirectional condenser type, this discretely worn mic can be used to amplify all kinds of sounds. (ex. enhance the voice of a teacher or speaker). This lavalier microphone can be replaced by our "HM-36U headset microphone" (order code: 427), often used for aerobics etc.
9. **Tie Clip:** used to clip the lavalier on the tie or lapel of a person.
10. **Battery Compartment:** Insert two AA rechargeable or dry (Alkaline) batteries into the compartment. Make sure that the polarity of batteries is correct.
11. **Battery Cover:** unscrew it gently and slide it down to open the battery compartment or have access to the channel selector (5).



## INSTALLATION GUIDELINES:

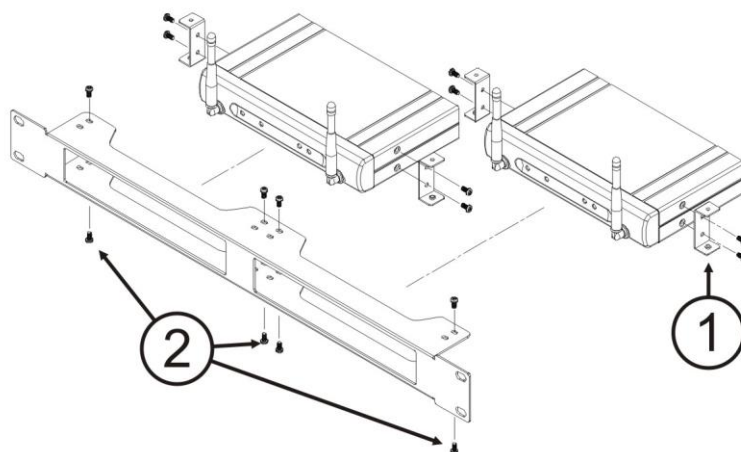
- Install the receiver in a ventilated location where it will not be exposed to high temperatures or humidity.
- Placing and using the unit for long periods near heat-generating sources such as amplifiers, spotlights, etc. will affect its performance and may even damage the unit.
- The unit can be mounted in 19-inch racks: for this purpose a special 19" adapter (RP-WMIC) is available, see below.
- When installed in a booth or flight case, please make sure to minimize shocks and vibrations during transport.
- To avoid condensation to be formed inside, allow the unit to adapt to the surrounding temperatures when bringing it into a warm room after transport. Condense sometimes prevents the unit from working at full performance.
- Also check the extra notes in the chapter "SETUP and CONNECTIONS"

### INSTALLING THE RECEIVER:

**Standalone:** You can use the receiver standalone: just put both antennas in vertical position and connect the receiver as described in the chapter "connections".

**In a 19" rack:** you can install one or two receivers in a 19" rack, using an optional "RP-WMIC" adapter:

1. Install 2 pieces ear short racks on both side sides of receiver.
2. Install the receiver inside the 19" metal rack adapter by screwing the ear short racks.



## SETUP AND CONNECTIONS

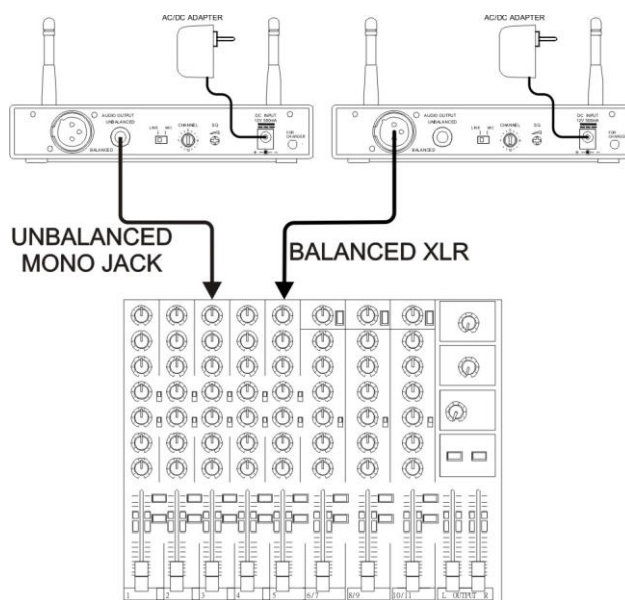
### ! Some important notes before we start !

- One receiver can only be used with one transmitter (handheld mic / belt pack). Using 2 or more transmitters simultaneously with the same receiver is impossible: this will result in a lot of interference and trouble!
- Receiver and transmitter should always use the same channel setting (frequency)!
- The distance between receiver and transmitter should at least be 1 meter.
- To minimize interferences install the receiver away from big metal surfaces/objects, TV and other wireless appliances.
- Try to minimize the number of obstructions (thick concrete walls, big metal objects, ...) in the path between the transmitter and receiver.
- Up to 4 or 5 transmitters can be used simultaneously on condition that each has its own receiver!

### RECEIVER – AUDIO CONNECTIONS

First determine which audio inputs are available on your mixer, next decide how to connect the receiver:

- **To a balanced MIC-input of the audio mixer:** close the gain of the mixer input and set the mic/line switch on the receiver (7) to MIC. Use an XLR/XLR cable to connect the receiver "XLR-output (5)". Switch the transmitter (hand mic/belt pack) on and bring the input gain of the mixer slowly up.
- **To a balanced LINE-input of the audio mixer:** close the gain of the mixer input and set the mic/line switch on the receiver (7) to LINE. Use an XLR/XLR cable to connect the receiver "XLR-output (5)". Switch the transmitter (hand mic/belt pack) on and bring the input gain of the mixer slowly up.
- **To an unbalanced MIC-input of the audio mixer:** close the gain of the mixer input and set the mic/line switch on the receiver (7) to MIC. Use the supplied JACK/JACK cable to connect the receiver "JACK-output (6)". Switch the transmitter (hand mic/belt pack) on and bring the input gain of the mixer slowly up.
- **To an unbalanced LINE-input of the audio mixer or hifi stereo set:** close the gain of the mixer input and set the mic/line switch on the receiver (7) to LINE. Use the supplied JACK/JACK cable to connect the receiver "JACK-output (6)". Switch the transmitter (hand mic/belt pack) on and bring the input gain of the mixer slowly up.



**NOTE:** never use the balanced and unbalanced outputs together, this will results in signal loss and increased noise.

**WIRELESS HAND MIC – SETUP**

- Switch the Receiver on and select a channel.
- Open the battery compartment and insert two AA batteries (alkaline or fully charged Ni-MH type).
- Select exactly the same frequency channel (5) as on the receiver.
- Press the power switch (3) for some seconds: one of the diversity LEDs (4) on the receiver should be lit to indicate that the RF-signal of the transmitter is captured.
- Speak through the mic: the AF indicator (3) will flash to the rhythm of your voice.
- While checking the system, walk around to check if you encounter any dead spots (no reception): in these cases, try to change the position of the receiver.

**BELT PACK – SETUP**

- Switch the Receiver on and select a channel.
- Open the battery compartment and insert two AA batteries (alkaline or fully charged Ni-MH type).
- Select exactly the same frequency channel (6) as on the receiver.
- Connect the lavalier microphone or optional headset mic and put the MIC/LINE switch (4) on the belt pack to MIC.
- Alternatively you can also connect a line audio signal (ex. Guitar), in that case you should put the MIC/LINE switch (4) on the belt pack to LINE.
- Press the power switch (2) for some seconds: one of the diversity LEDs (4) on the receiver should be lit to indicate that the RF-signal of the transmitter is captured.
- Speak through the mic: the AF indicator (3) will flash to the rhythm of your voice.
- If needed, you can still fine-tune the audio level with the gain knob (7).
- While checking the system, walk around to check if you encounter any dead spots (no reception): in these cases, try to change the position of the receiver.

**SEVERAL SETS WORKING TOGETHER – SETUP NOTES**

Even if the transmitters and receiver have 16 channels, you cannot use 16 wireless systems together: depending on the situation you will be able to use maximum 6 sets together.

While setting up more than one system, you should choose different channels for each set. It's important that you never choose consecutive channels. Instead try to divide the channels evenly over the 16 possibilities: First setup one system and leave it switched on. (see above for more information)

- Setup the second system and check if it interferes with the first one (unwanted buzz noises etc.). In case of interferences, select another channel for your 2<sup>nd</sup> set and try again until everything works well and leave the set switched on.
- For the 3<sup>rd</sup> and next sets, just repeat what you did for set2 until all sets can work together.

Channel Frequencies:

CHANNEL 1	823.175MHz	CHANNEL 9	829.500MHz
CHANNEL 2	823.875MHz	CHANNEL 10	830.575MHz
CHANNEL 3	824.825MHz	CHANNEL 11	831.375MHz
CHANNEL 4	825.425MHz	CHANNEL 12	831.825MHz
CHANNEL 5	826.225MHz	CHANNEL 13	863.275MHz
CHANNEL 6	827.375MHz	CHANNEL 14	863.675MHz
CHANNEL 7	828.225MHz	CHANNEL 15	864.325MHz
CHANNEL 8	828.725MHz	CHANNEL 16	864.725MHz

**TROUBLESHOOTING**

<b>Problem</b>	<b>Solution</b>
<b>No sound</b>	<ul style="list-style-type: none"> <li>• Check the power supply of the microphone and receiver.</li> <li>• Check that the transmitter and receiver are tuned to the same channel (frequency).</li> <li>• Check if the hi-fi appliance or audio mixer is switched on and the receiver output is connected to audio desired input. Mixer: is the gain open?</li> <li>• Check if the transmitter is too far away from the receiver or SQUELCH control is set too high.</li> <li>• Check if the receiver is located near a large metal object or if there are large obstructions (ex. large metal object or thick wall) between transmitter and receiver.</li> </ul>



- Sound interference**
- Check the antenna location.
  - When using 2 or more microphone sets simultaneously, make sure that the selected channels don't interfere: select another channel pair on one of the sets.
  - Check whether the interference comes from other wireless microphones, TV, radio, PC, etc.
- Distortion**
- Check if the receiver volume level is set too high or too low.
  - Check if the mic/line switch and gain volume on the belt pack are correct.
  - Check if the interference comes from other wireless microphones, TV, radio, PC, etc.

### **CLEANING THE APPLIANCE:**

Clean by wiping with a polished cloth slightly dipped with water. Avoid getting water inside the unit. Do not use volatile liquids such as benzene or thinner which will damage the unit.

## **DECLARATION OF CONFORMITY**

### **RECEIVER: R&TTE Declaration of Conformity**

We, Beglec NV, declare under our sole responsibility that the product:

Brand : JB Systems  
 Product Group : Wireless Receiver  
 Model n° : WR-100

Meets the essential requirements as described in the R&TTE directive 1999/5/EC, based on the following standards applied:

EN 300 422-2 : V1.2.2 (2008-03)  
 EN 301 489-01 V1.8.1 (2008-04)  
 EN 301 489-09 V1.4.1 (2007-11)  
 EN 60065:2002+A1:2006+A11:2008

Full test reports and other relevant information remain at the disposal of the Control Agencies at our head office:

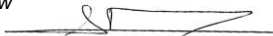
**Beglec NV ~ 't Hofveld 2c ~ B1702 Groot-Bijgaarden ~ Belgium**

Groot-Bijgaarden, July 25th 2009

For Beglec NV, **VOOR BEGLEC NV**

Luc De Bauw

Director



Luc De Bauw  
 Afgevaardigd Bestuurder

### **WIRELESS HAND MICRO : R&TTE Declaration of Conformity**

We, Beglec NV, declare under our sole responsibility that the product:

Brand : JB Systems  
 Product Group : Wireless Transmitter  
 Model n° : WMIC-100

Meets the essential requirements as described in the R&TTE directive 1999/5/EC, based on the following standards applied:

EN 300 422-2 : V1.2.2 (2008-03)  
 EN 301 489-01 V1.8.1 (2008-04)  
 EN 301 489-09 V1.4.1 (2007-11)  
 EN 60065:2002+A1:2006+A11:2008

Full test reports and other relevant information remain at the disposal of the Control Agencies at our head office:

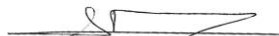
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Groot-Bijgaarden, July 25th 2009

For Beglec NV, **VOOR BEGLEC NV**

Luc De Bauw

Director



Luc De Bauw  
 Afgevaardigd Bestuurder

### **WIRELESS BELT PACK : R&TTE Declaration of Conformity**

We, Beglec NV, declare under our sole responsibility that the product:

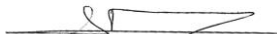
Brand : JB Systems  
 Product Group : Wireless Transmitter  
 Model n° : WBP-200

Meets the essential requirements as described in the R&TTE directive 1999/5/EC, based on the following standards applied:

EN 300 422-2 : V1.2.2 (2008-03)  
 EN 301 489-01 V1.8.1 (2008-04)  
 EN 301 489-09 V1.4.1 (2007-11)  
 EN 60065:2002+A1:2006+A11:2008

Full test reports and other relevant information remain at the disposal of the Control Agencies at our head office:  
**Beglec NV ~ 't Hofveld 2c ~ B1702 Groot-Bijgaarden ~ Belgium**

Groot-Bijgaarden, July 25th 2009  
 For Beglec NV,  
*Luc De Bauw*  
 Director



Luc De Bauw  
 Afgevaardigd Bestuurder

#### **NOTE:**

**WMS-100** wireless set contains: 1pc **WMIC-100** + 1pc **WR-100**

**WBS-200** wireless set contains: 1pc **WBP-200** + 1pc **WR-100**

## **SPECIFICATIONS**

### **RECEIVER**

<b>Carrier Frequency Range:</b>	UHF band
<b>Frequency Stability:</b>	±0,005%
<b>Receiving Sensitivity:</b>	@ 5µV S/N ratio >80dB
<b>Image and Spurious Rejection:</b>	80 dB minimum
<b>Selectivity:</b>	>50dB
<b>Modulation Mode:</b>	FM
<b>Receiver type:</b>	PLL synthesized, switching diversity
<b>IF Frequency:</b>	1 <sup>st</sup> : 243.95MHz ~ 2 <sup>nd</sup> : 10.7MHz
<b>Tone Signal:</b>	32,768KHz
<b>S/N ratio:</b>	>94dB, @ 20kHz deviation & 60µV antenna input
<b>AF Response:</b>	80Hz to 15kHz (±3dB)
<b>T.H.D.:</b>	Less than 1,0% (at 1kHz)
<b>Power Supply:</b>	DC 12V ~ 18V
<b>Audio Output:</b>	Balanced & unbalanced outputs (Mic.= -20dB / Line = 0dB)
<b>Current consumption:</b>	130mA ±10mA

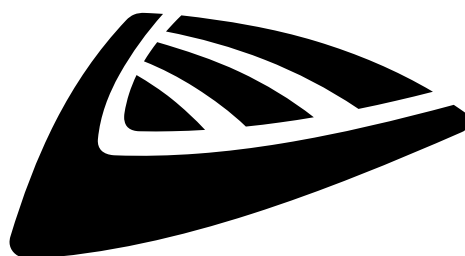
### **HANDHELD MIC / BELT PACK TRANSMITTER**

<b>Carrier Frequency Range:</b>	UHF band
<b>RF Power Output:</b>	10mW (max.)
<b>Oscillation Mode:</b>	PLL synthesized, 16Channel selectable
<b>Frequency Stability:</b>	±0,005%
<b>Maximum Deviation:</b>	±20kHz with limiting compressor
<b>Spurious Emission:</b>	>60dB below carrier frequency
<b>T.H.D.:</b>	<1,0% (at 1KHz)
<b>Microphone Capsule:</b>	<b>Handheld:</b> uni-directional dynamic <b>Lavalier:</b> uni-directional electret condenser unit
<b>Tone Signal:</b>	32,768 kHz
<b>Battery:</b>	DC 3V (2x 1,5V AA size alkaline batteries ) OR DC 2.4V (2x 1,2V AA size rechargeable batteries)
<b>Current consumption:</b>	120mA ±10mA @ 3V

Every information is subject to change without prior notice

You can download the latest version of this user manual on our website: [www.jb-systems.eu](http://www.jb-systems.eu)





# **JB SYSTEMS**

## **MAILING LIST**

**EN: Subscribe today to our mailing list for the latest product news!**

**FR: Inscrivez-vous à notre liste de distribution si vous souhaitez suivre l'actualité de nos produits!**

**NL: Abonneer je vandaag nog op onze mailinglijst en ontvang ons laatste product nieuws!**

**DE: Abonnieren Sie unseren Newsletter und erhalten Sie aktuelle Produktinformationen!**

**ES: Suscríbete hoy a nuestra lista de correo para recibir las últimas noticias!**

**PT: Inscreva-se hoje na nossa mailing list para estar a par das últimas notícias!**

**[WWW.JB-SYSTEMS.EU](http://WWW.JB-SYSTEMS.EU)**

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