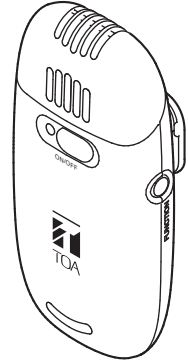


**INFRARED WIRELESS MICROPHONE IR-310M**

Thank you for purchasing TOA's Infrared Wireless Microphone.  
Please carefully follow the instructions in this manual to ensure long,  
trouble-free use of your equipment.


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# 1. SAFETY PRECAUTIONS

- Before installation or use, be sure to carefully read all the instructions in this section for correct and safe operation.
- Be sure to follow all the precautionary instructions in this section, which contain important warnings and/or cautions regarding safety.
- After reading, keep this manual handy for future reference.



## **WARNING**

Indicates a potentially hazardous situation which, if mishandled, could result in death or serious personal injury.



## **CAUTION**

Indicates a potentially hazardous situation which, if mishandled, could result in moderate or minor personal injury, and/or property damage.



## **WARNING**

### **When the Unit is in Use**

- Use TOA's IR-310BC Battery Charger when recharging.  
The infrared wireless microphone can be powered by optionally available nickel metal hydride (NiMH) batteries. The use of any other than the specified charger could result in fire, personal injury or environmental contamination due to battery rupture or leakage.
- Stop charging if the batteries are not fully charged within 3 hours. Failure to do so may cause the batteries to fire, explode, leak, or heat.
- Never short-circuit the charging terminals on the bottom of the microphone with metal objects.  
Doing so could result in electric shocks or burns.
- To prevent the electromagnetic wave from badly influencing medical equipment, make sure to switch off the unit's power when placing it in close proximity to the medical equipment.



## **CAUTION**

### **When the Unit is in Use**

- When the unit is not in use for 14 days or more, be sure to take the batteries out of the unit because battery leakage may cause a fire, personal injury, or environmental contamination.
- Make sure to observe the following handling precautions so that a fire or personal injury does not result from leakage or explosion of the battery.
  - Be sure to use only the IR-200BT Rechargeable Battery designed for use with the infrared wireless microphone.
  - Do not short, disassemble, heat nor put the battery into a fire.
  - Do not solder a battery directly.
  - Note correct polarity (positive and negative orientation) when inserting a battery in the unit.
  - Avoid locations exposed to the direct sunlight, high temperature and high humidity when storing batteries.
- When you discard batteries, please contact the local dealer from whom you bought.

## FCC Compliance

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

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

Any modifications made to this device that are not approved by TOA Corporation may void the authority granted the user by the FCC to operate this equipment.

**Note:** This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference with radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

## 2. GENERAL DESCRIPTION

The IR-310M (hands-free type) infrared wireless microphone is intended for speech applications and uses unidirectional electret condenser microphone unit featuring high sensitivity and clear sound.

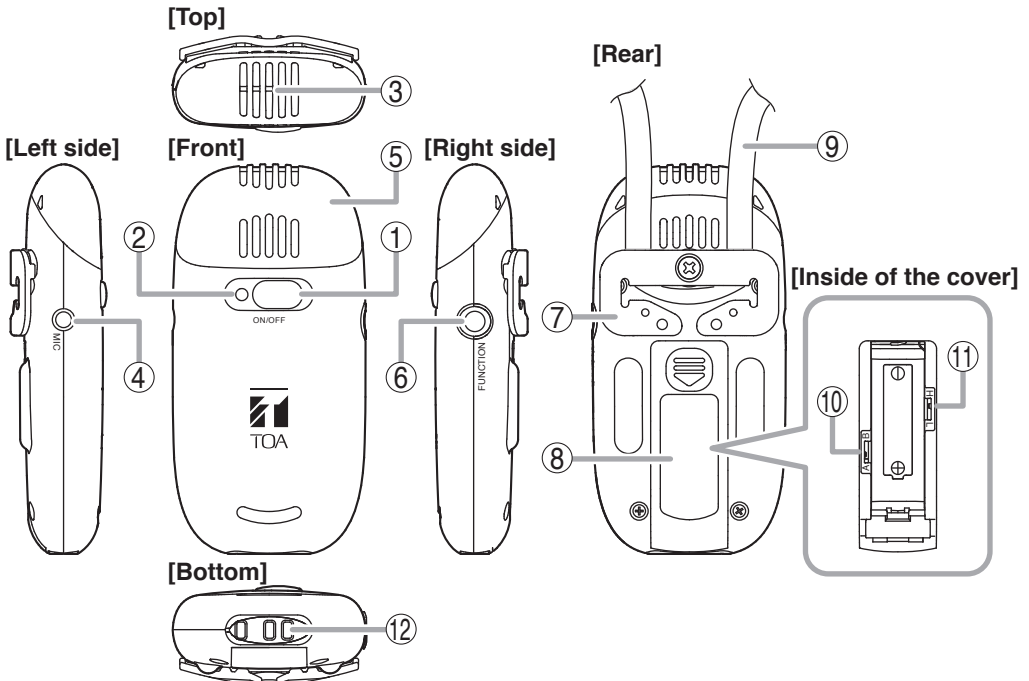
## 3. FEATURES

- Selectable one of 2 different frequencies.
- Equipped with a Function button to control external equipment like paging system, strobe light or message repeater when using with the unit in conjunction. (This function is enabled only when the unit's transmitting frequency is set to Channel "A.")
- Powered by an IR-200BT rechargeable NiMH battery.
- The IR-310M is equipped with an external microphone input terminal, allowing it to be used in combination with the Q-EM-77 Single Ear Microphone, YP-M301 Headset Microphone, or WH-4000H Headset Microphone.
- The microphone system's infrared transmission eliminates problems with interference or eavesdropping, allowing simultaneous use in adjacent conference rooms or school classrooms.

## 4. HANDLING PRECAUTIONS

- Do not cover the infrared wireless microphone's infrared emitter with the hand or hide the microphone by placing it inside clothes. Covering the infrared emitter will disable light transmission.
- Avoid using the infrared microphone in close proximity to plasma displays or infrared LAN, which could lead to noise or microphone malfunctions.
- Do not dismantle or modify the infrared microphone.
- Take care not to drop the infrared microphone on the floor or hit it on hard objects, as this could lead to microphone failures.
- The infrared microphone cannot be used outdoors or in areas exposed to direct sunlight.
- Do not place the infrared microphone in high-temperature locations, such as in a car parked with its doors closed in summer, or in highly humid locations, as this could lead to microphone failure.
- Avoid using the infrared microphone in locations that can be splashed with perspiration or seawater, as this could lead to microphone failures.
- When cleaning the infrared microphone, be sure to turn the power switch to OFF. Wipe with a soft dry cloth. If it gets very dirty, use the soft cloth slightly moistened in neutral cleanser. Never use volatile spirits like thinner, benzene, or alcohol. Such chemicals may damage its plastic surface.
- Clean the charging terminals regularly using a dry cotton swab. Dirty terminals can cause poor electrical contact and cause batteries to be charged incorrectly.

## 5. NOMENCLATURE AND FUNCTIONS



### 1. Power switch

Push the switch to switch ON the unit's power.

To switch it OFF, push the switch again.

### 2. Power/battery indicator

Turning on the power switch causes this indicator to come on, allowing it to also function as a battery indicator.

This indicator continuously lights green while the battery is fully charged, and gradually changes to red as the battery becomes weaker.

### 3. Built-in microphone

### 4. External microphone input terminal

Used to connect a headset microphone or other external microphone.

### 5. Infrared emitter

Transmits the infrared beam for communications.

### 6. Function button

This button can be used only when the Channel selector switch (10) is set to "A" position.

The IR-801AF keeps outputting Channel A's audio signals of the IR-310M and providing a closed contact output while this button is pushed. (Refer to p. 7 "OPERATION.")

### 7. Clip

Used to fix the IR-310M to the front of your clothes for hands-free use.

### 8. Battery cover

Contains the battery compartment.

Be sure to open and close the cover correctly.

(Refer to p. 5 "BATTERY INSERTION.")

### 9. Neck strap

Used to hang the infrared wireless microphone around the neck.

(Refer to p. 8 "INFRARED WIRELESS MICROPHONE USAGE TIPS.")

### 10. Channel selector switch

Set the selector switch to the desired channel "A" or "B."

(Refer to p. 10 "CHANNEL SETTINGS.")

### 11. Microphone sensitivity selector switch

Used to select the microphone sensitivity.

(Refer to p. 8 "Setting the Microphone Sensitivity Selector Switch.")

### 12. Charging terminal

(Refer to p. 6 "WHEN OPERATING ON RECHARGEABLE BATTERIES.")

## 6. BATTERY INSERTION

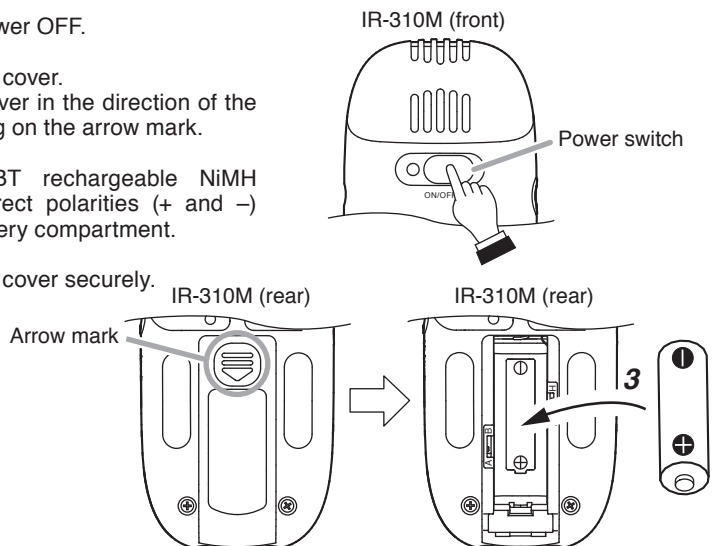
**Step 1.** Switch the unit's power OFF.

**Step 2.** Remove the battery cover.

Slide the battery cover in the direction of the arrow while pressing on the arrow mark.

**Step 3.** Insert an IR-200BT rechargeable NiMH battery, noting correct polarities (+ and -) indicated in the battery compartment.

**Step 4.** Replace the battery cover securely.



## 7. WHEN OPERATING ON RECHARGEABLE BATTERIES



### CAUTION

When charging, never insert rechargeable battery other than the specified IR-200BT battery in the IR-310M. Charging any other than the IR-200BT battery may result in fire or personal injury due to battery rupture.

#### Notes

- When operating on rechargeable battery, the optional IR-310BC Battery Charger is required.
- For rechargeable battery, be sure to use the optional IR-200BT battery. Do not use other battery.

### 7.1. How to Charge

**Step 1.** Switch the IR-310M's power OFF.

#### Note

Battery cannot be correctly charged if the power is ON.

**Step 2.** Place an IR-200BT rechargeable battery in the IR-310M.

(Refer to p. 5 "BATTERY INSERTION.")

**Step 3.** Fully insert the IR-310M into the microphone receptacle of the IR-310BC Battery Charger.

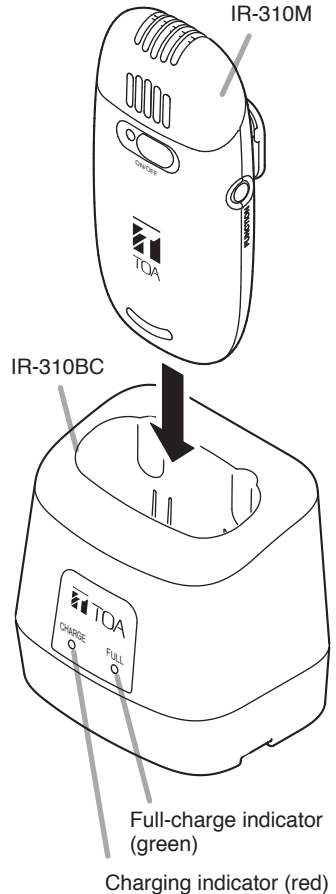
The IR-310BC's charging indicator lights red and charging begins.

Charging is completed in about 3 hours and the IR-310BC's full-charge indicator lights green.

#### Notes

- Insert the IR-310M so that both front sides of the IR-310M and the IR-310BC face to the same direction as shown at right.
- If the red charging indicator does not light even if the IR-310M has been inserted into the charger, check to see if the IR-310M has been correctly inserted.
- The IR-310M becomes warm after charging completion, however this is not a failure.

**Note:** For more information, please read the instruction manual enclosed with the IR-310BC Battery Charger.



## 7.2. Charging Timing

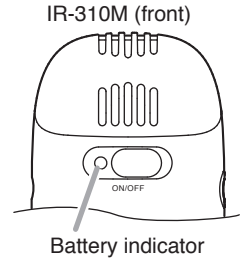
As discharge progresses, the battery indicator's color gradually changes from green to red. If the indicator lights red during use, charge the IR-310M immediately since the microphone will be disabled several minutes after the indicator has lit red.

### [Guidelines on the rechargeable battery operation time]

Continuous usage time: About 8 hours

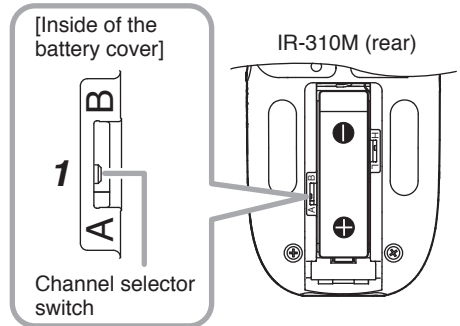
### Notes

- When using the IR-200BT rechargeable battery for the first time or when using it after it has been stored for a long period of time, be sure to charge it before use.
- The IR-200BT battery is designed to cycle through about 500 charges and discharges. When the microphone operation interval becomes extremely short after prolonged repeated use, change the battery with a new one.
- Do not frequently insert and remove the microphone from the charger during charging, as this could reduce the number of times that the IR-200BT can be effectively charged and discharged.



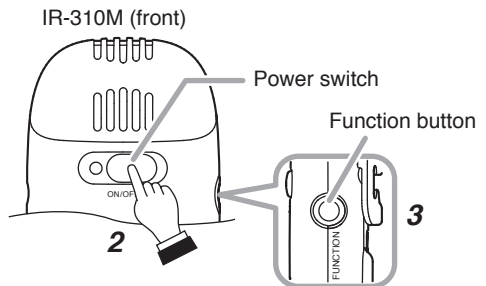
## 8. OPERATION

**Step 1.** Confirm that the IR-310M has been set to the desired channel "A" or "B."  
(Refer to p. 10 "CHANNEL SETTING.")



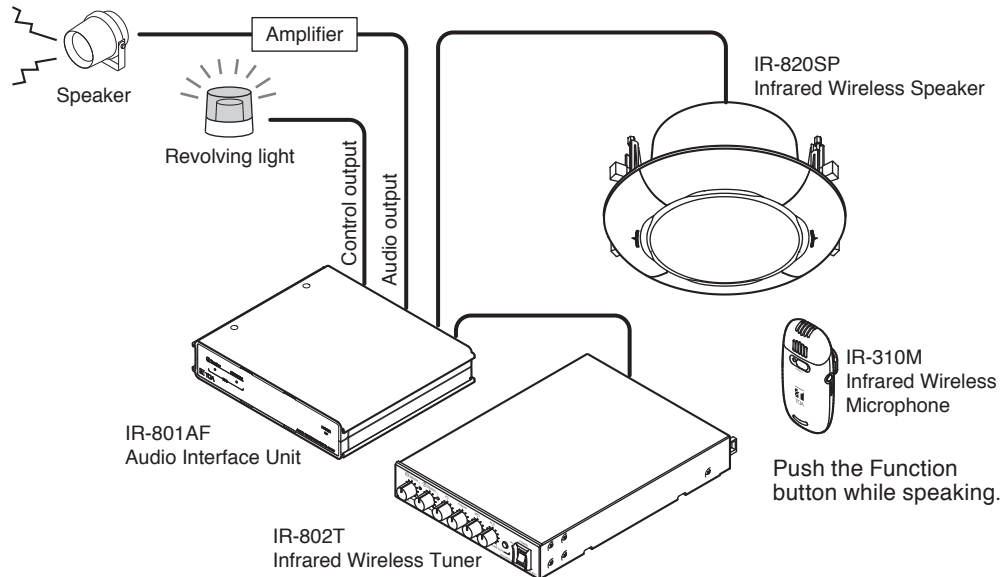
**Step 2.** Switch the IR-310M's power ON and confirm that the battery indicator lights green.

**Step 3.** (When wishing to use the Function button, which is enabled only when the unit's transmitting frequency is set to Channel "A.")  
Push the Function button while speaking into the microphone.  
Audio signals are also output from the IR-801AF Audio Interface Unit, besides the IR-801AF's contact output is closed. (See the next page.)



**Step 4.** Switch the IR-310M's power OFF after use.

## [Example of Function button usage]



## 9. INFRARED WIRELESS MICROPHONE USAGE TIPS

### 9.1. When Holding the Microphone By Hand or Hanging It Around the Neck

**Note:** Do not cover the infrared wireless microphone's infrared emitter with the hand or hide the microphone by placing it inside clothes. Covering the infrared emitter will disable light transmission.

#### [Hands-free use]

Hang the microphone around the neck so that its infrared emitter is oriented toward the front.

[Correct]



[Incorrect]



#### [Hand-held use]

Do not cover the unit's infrared emitter with the hand or hide the unit by placing it inside clothes. Covering the infrared emitter will disable light transmission.

[Correct]



[Incorrect]



### 9.2. Setting the Microphone Sensitivity Selector Switch

The microphone sensitivity can be set to "H" (High) or "L" (Low).

To obtain better sound quality, it is recommended to set "H" position when hanging the microphone around your neck and "L" position when holding it by hand. In addition, when using the IR-310M in conjunction with the optional microphone to be connected to the external microphone input terminal, the following position settings are recommended to obtain better sound: "H" position for



the Q-EM-77 Single Ear Microphone and "L" position for the YP-M301 or WH-4000H Headset Microphone.

If reproduced voices are distorted depending on the environment of use, set the sensitivity to "L" position.

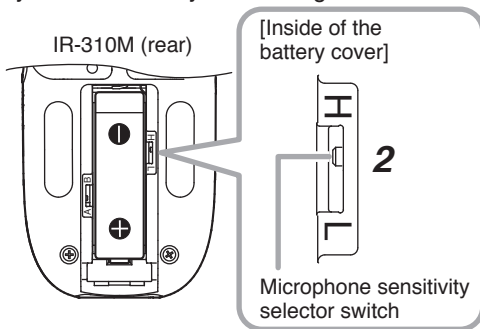
### Notes

- Be sure to switch the unit's power OFF before setting.
- Avoid bringing the microphone too close to your mouth or speaking too loud into the microphone. Otherwise, reproduced voices may become muddy or cracking.
- The sensitivity is factory-set to "H" position.

**Step 1.** Check that the power is switched OFF, then remove the battery cover. (Refer to p. 5 "BATTERY INSERTION.")

**Step 2.** Set the microphone sensitivity selector switch to the desired position.

**Step 3.** Replace the battery case and tighten it firmly.

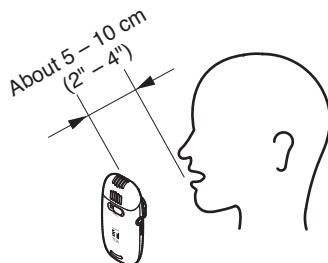


### 9.3. Microphone-to-Mouth Distance

To obtain better sound quality, it is advisable that the microphone be kept 5 – 10 cm (2" – 4") from the mouth. For hands-free use, adjust the neck strap length so as to position the microphone within this distance range.

#### Note

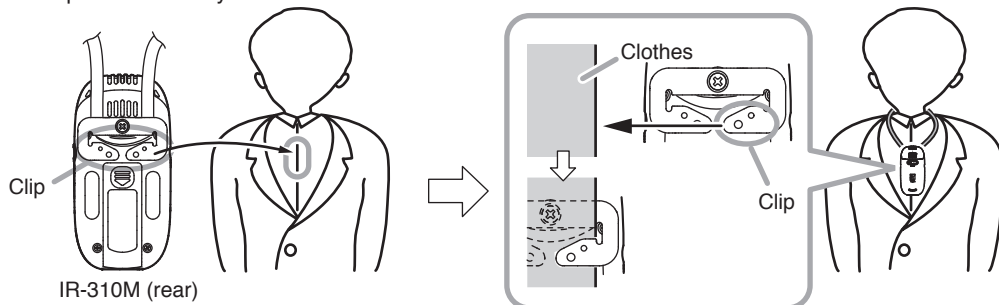
Do not speak loudly with the microphone close to the mouth (within 5 cm or 2"). The voice will sound muddy and hard to hear.



### 9.4. When Using the Clip

In the case of hands-free use, to keep the unit from moving, fix it to the front of your clothes with the clip.

When clipping the microphone to your clothes front, use one of the clip tabs and orient the microphone vertically as shown below.



## 10. CHANNEL SETTING

**Note:** Make sure that the IR-310M's channel is set to the desired channel "A" or "B."

**Step 1.** Switch the unit's power OFF.

(Refer to p. 5 "BATTERY INSERTION.")

**Note**

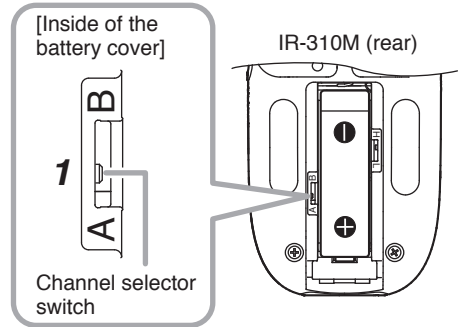
If the channel is changed when the power is on, the transmitting frequency changes immediately and noises may occur.

**Step 2.** Remove the battery cover.

(Refer to p. 5 "BATTERY INSERTION.")

**Step 3.** Set the channel selector switch to the desired channel "A" or "B."

**Step 4.** Replace the battery cover securely.



## 11. TROUBLESHOOTING

Symptom	Possible cause	Remedy
Battery indicator does not light even if the power is switched on.	<ul style="list-style-type: none"> <li>• Battery polarities not correct.</li> <li>• Specified battery not used.</li> </ul>	<ul style="list-style-type: none"> <li>• Reinsert batteries correctly.</li> <li>• Replace the batteries with the IR-200BT rechargeable batteries for the infrared wireless microphone.</li> <li>• Charge using IR-310BC Battery Charger.</li> </ul>
When the power is switched on, the battery indicator lights red.	<ul style="list-style-type: none"> <li>• Battery discharged.</li> </ul>	<ul style="list-style-type: none"> <li>• Charge using the IR-310BC Battery Charger.</li> </ul>
Interferes with other infrared wireless microphone being used simultaneously.	<ul style="list-style-type: none"> <li>• Two infrared wireless microphones set to the same channel.</li> </ul>	<ul style="list-style-type: none"> <li>• Set channels correctly. (Refer to "CHANNEL SETTING" above.)</li> </ul>
	<ul style="list-style-type: none"> <li>• Infrared wireless microphone used too close to the tuner.</li> </ul>	<ul style="list-style-type: none"> <li>• Keep the infrared microphone at least 50 cm (20") away from the infrared tuner.</li> </ul>

## 12. SPECIFICATIONS

Battery	One piece of IR-200BT-2 rechargeable battery for the infrared wireless microphone (option)
Current Consumption	Typ. 215 mA (1.2 V)
Infrared Emitter	
Wavelength	870 nm (AM: Brightness modulation)
Modulation Method	Frequency modulation
Carrier Frequency	Channel A: 3.100 MHz Channel B: 3.350 MHz
Transmission Distance	Approx. 15 m or 50 ft (in an unobstructed space)
Tone Signal	32.768 kHz
Modulation Sensitivity	±4.8 kHz (1 kHz, when SPL of 84 dB is input)
Microphone Element	Electret condenser microphone, Uni-directional
Maximum Input Sound Pressure	120 dB SPL
Input Sensitivity Adjustment	Adjustment range: 2 levels (High, Low)
Frequency Response	100 Hz – 12 kHz
Preemphasis	300 μs
Input	External microphone input (ø3.5 monaural mini jack, phantom powered)
Switch	Power switch, Channel selector switch, Microphone sensitivity selector switch, Function button
Indicator	Power/battery indicator
Battery Operation Time	Approx. 8 hours (when used with one piece of IR-200BT-2 rechargeable battery)
Operating Temperature	0 to 40 °C (32 to 104 °F)
Operating Humidity	90 %RH or less (no condensation)
Finish	Control section: ABS resin, White Filter section: Polycarbonate, optical cut filter
Dimensions	54.2 (w) x 109 (h) x 27 (d) (2.13" x 4.29" x 1.06")
Weight	95 g or 0.21 lb (with battery and strap)

**Note:** The design and specifications are subject to change without notice for improvement.

### • Accessory

Neck strap ..... 1

### • Optional products

Battery Charger : IR-310BC

Rechargeable battery: IR-200BT-2 (containing 2 pieces)

### Traceability Information for Europe

Manufacturer:  
TOA Corporation  
7-2-1, Minatojima-Nakamachi, Chuo-ku, Kobe, Hyogo,  
Japan

Authorized representative:  
TOA Electronics Europe GmbH  
Suederstrasse 282, 20537 Hamburg,  
Germany

### احتياطات تتعلق بنواحي السلامة

- يجب التأكد، قبل التركيب أو الاستخدام، من قراءة كافة التعليمات التي من شأنها أن تضمن استخداماً آمناً وصحياً.
- ينبغي التأكد من إتباع كافة تعليمات الحيلة، والتي تشمل تحذيرات هامة واحتياطات تخص السلامة أو أيأاً منهما.
- يفضل الاحتفاظ بهذا الكتيب عقب قراءته في متناول اليد للرجوع إليه لاحقاً.

**احذر** ⚠️ المؤشرات والمواقف المحتملة التي تشكل خطورة، التي تؤدي إلى الوفاة أو الإصابات الشخصية الخطيرة في حالة إساءة الاستخدام.

**احترس** ⚠️ المؤشرات والمواقف المحتملة التي تشكل خطورة، التي تؤدي إلى إصابات شخصية تتراوح ما بين متوسطة وطفيفة، بالإضافة إلى إلحاق الضرر بالعقار، أو أيأاً منهما.

**احذر** ⚠️

عندما تكون الوحدة قيد الاستخدام

- استعمل شاحن البطارية IR-310BC من TOA عند إعادة الشحن. يمكن تشغيل ميكروفون الأشعة تحت الحمراء اللاسلكي بواسطة بطاريات هيدريد معدن النيكل (NiMH) المتوفرة اختياريًا. استعمال أي شاحن غير ذلك المحدد قد يسبب حريقاً أو جروحاً أو تلوث البيئة بسبب تشقق البطارية أو تسرب السائل منها.
- توقف عن الشحن إذا لم يتم شحن البطاريات بالكامل خلال 3 ساعات. عدم القيام بذلك قد يسبب اشتعال البطاريات أو انفجارها أو تسرب السائل منها أو سخونتها.
- لا تقم بتقصير دائرة أطراف الشحن أسفل الميكروفون بواسطة أشياء معدنية. قد يسبب القيام بذلك صدمات كهربائية أو حروقا
- ولتفادي التأثيرات السلبية للموجات الكهرومغناطيسية على المعدات الطبية، لابد من التأكد من غلق مفتاح التيار الكهربائي للوحدة عند وضعه بالقرب من المعدة الطبية.

**احترس** ⚠️

عندما تكون الوحدة قيد الاستخدام

- عند عدم استعمال الوحدة لمدة 14 يوماً أو أكثر، تأكد من إخراج البطاريات من الوحدة لأن تسرب السائل من البطارية قد يسبب حريقاً أو جروحاً أو تلوث البيئة.
- لابد من التأكد من مراعاة احتياطات كيفية الاستخدام التالية حتى لا تنتج أية حرائق أو إصابات بشرية عن تسرب البطارية أو انفجارها.
- تأكد من استعمال البطارية القابلة للشحن IR-200BT فقط المصممة للاستعمال مع ميكروفون الأشعة تحت الحمراء اللاسلكي.
- لا تجفف البطارية أو تقوم بفكها، أو بتسخينها، أو تضعها على النار.
- لا تقم بعمل لحام قصدير على البطارية مباشرة.
- يراعى استخدام الأقطاب الصحيحة (ذات الاتجاه الموجب والسالب عند إدخال البطارية في الوحدة).
- تجنب الأماكن المعرضة لضوء الشمس المباشر، أو درجة الحرارة، أو الرطوبة العالية عند تخزين البطارية.