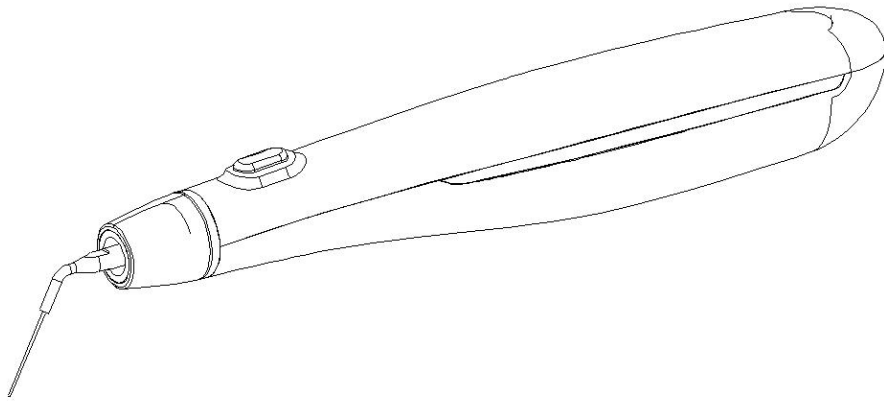# Ultrasonic Endo Activation Device

### User Manual

Changzhou Bomedent Medical Technology Co., Ltd.

Thank you very much for choosing the Ultrasonic Endo Activation Device of Bomedent

● To give full play to the function of this device, and operate and maintain it correctly and safely, please read this User Manual carefully before using it, and keep this User Manual properly for reference at any time

Classification of device safety level:

● Classification of electric shock protection type: Class II

● Classification of electric shock protection level: Class B

● Classification of liquid entry prevention level: IPX0

● Sterilization or disinfection method: please refer to the cleaning and disinfection section

● Classified by the safety level in the case of using the product with flammable anesthetic gas mixed with air or flammable anesthetic gas mixed with oxygen or nitrous oxide: not to be used in the case of using the product with flammable anesthetic gas mixed with air or flammable anesthetic gas mixed with oxygen or nitrous oxide

● Operation mode: intermittent load continuous operation

# Contents

# 1. Product Introduction

## 1.1 Brief Introduction

Ultrasonic Endo Activation Device (hereinafter referred to as "Actor I pro" or "device") is an auxiliary device for dentists to perform root canal treatment. It is mainly used to effectively clean the root canal with the help of ultrasonic cavitation, so as to assist dentists to complete root canal treatment.

The features of this device are as follows:

a) The working process of this device is under full automatic control of microchip, which is convenient and simple to operate;

b) The vibration amplitude of the working tip can be adjusted so as not to harm the root canal, and its frequency can be dynamically adjusted to ensure cleaning efficiency;

c) The working tip, silicone case and wrench can be sterilized by high temperature and high pressure.

d) This device can be illuminated to make it clearer.

## 1.2 Model

Actor I pro

## 1.3 Scope of Application

Intended use: for cleaning of the root canal area of teeth.

User: dentist

Use place: hospital or dental clinic

## 1.4 Contraindications

a) It is contraindicated by hemophiliacs, patients with cardiac pacemaker or cochlear implant and doctors;

b) It should be used with caution on patients with heart disease, pregnant women and young children

## 1.5 Precautions for Use

Please read this User Manual carefully before use.

- This device may not work properly due to the following environmental factors:

1) Portable or movable radio frequency transmitters are present nearby.

2) Electromagnetic interference may cause abnormal operation of this device.

- As with all electronic devices, this device has electromagnetic interference and should not be used on patients with cardiac pacemaker.

- During operation and cleaning, be sure to pay attention to the direction and position of the working tip, so as not to hurt the patient and the operator.

- Please fully check whether there is looseness, noise or heating on the working tip. For any abnormal phenomenon, please stop using it and contact the local distributor or manufacturer.

- Please beware of collision, especially falling.

- When the working tip and silicone case need to be removed, please turn off the power first. So as not to accidentally touch the switch on the handle, thus leading to its accidental starting and causing injury to human body.

- When the battery on the screen displays flashing, please timely charge it. When charging, please use the original power adapter.

- Please use the original accessories. Accessories from other manufacturers may make this device unusable or damaged.

- Please do not disassemble and repair this device without permission, otherwise it may automatically lose the warranty qualification.

- Please do not place this device in a damp place or where it may come into contact with any liquid.

- Please do not expose this device to direct or indirect heat sources. This device must be operated and stored in a safe environment.

- Please take attention that changes or modification not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

- 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.
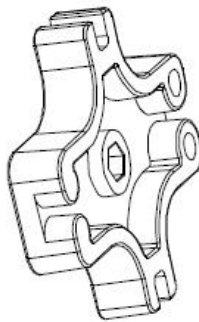
## 2. Product Configuration

### 2.1 External Structure of Main Frame of Product



### 2.2 Main Accessories of Product
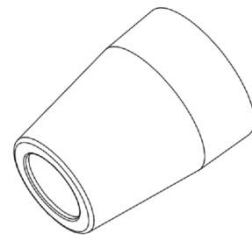


| Working tip | Wrench | Silicone case |



| Power adapter | Power cord | Charging base |
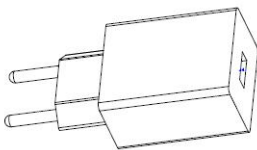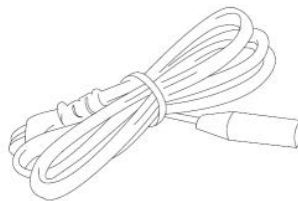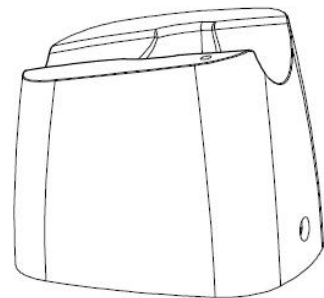
Wireless foot switch (optional)

**2.3 Accessories List**

Please see the packing list for the device configuration.

## 3. User Interface
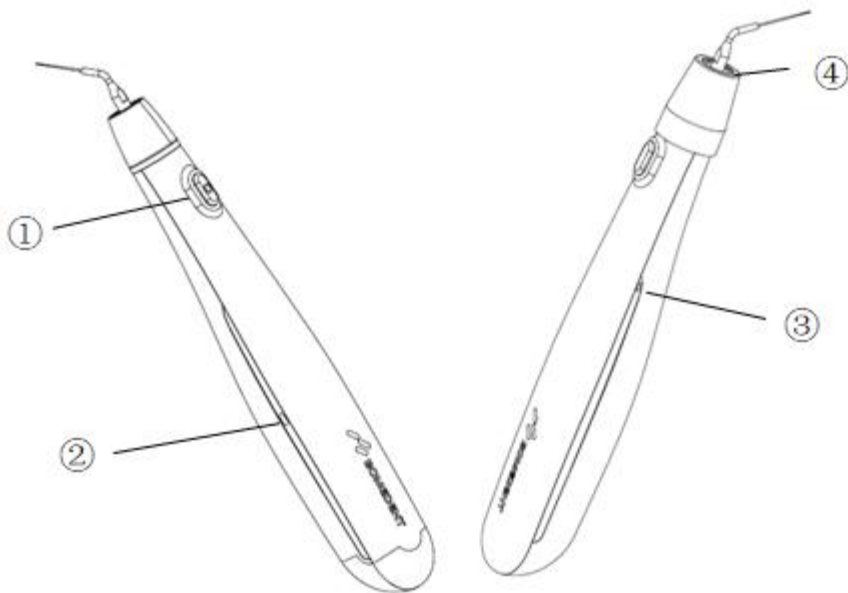


① : switch button with built-in power indicator light

② : battery power indicator light and charging indicator light

③ : bluetooth button with built-in bluetooth indicator light

④ : illuminating light

⑤ : Charging indicator light on charging base

**Switch button ①:**

➢ Power on: when the device is off, press and hold the switch button for 1 second, and the device will enter the standby state with the ring tone;

➢ Power off: in standby state, press and hold the switch button for 1 second, and the device will be turned off with the ring tone.

➢ Operation and stop: in standby state, press the switch button for 0.1 seconds, and the device will enter the working state and start vibrating. Press the switch button again to stop working.
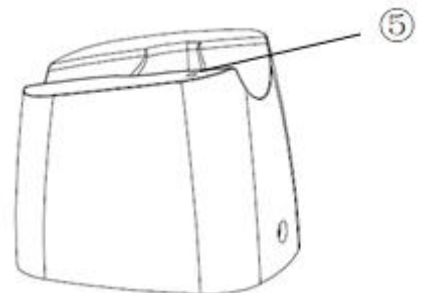
➢ Power setting: press and hold the switch button for 1 second in the working state to switch between "high" power and "low" power

➢ Power indicator light:

  ● Under "high" power: the power indicator light is always green;

  ● Under "low" power: the power indicator light flashes in green

**Battery power indicator light ②**

  ● Blue: it means that the battery power is above 50%;

  ● Yellow: it means that the battery power is between 10% and 50%;

  ● Flash in yellow: it means that the battery power is less than 10%, and the battery should be charged in time;

  ● Green: when the green light is always on, it indicates that the device is being charged. When the device is fully charged, the green light will turn off automatically.

**Bluetooth button ③**

➢ Turn on bluetooth: when both the wireless foot switch and the device are in standby state, press any button of the wireless foot switch first, and then press the bluetooth button ③ to open the bluetooth;

➢ Turn off bluetooth: when the bluetooth is on, press the bluetooth button ③ to turn off the bluetooth;

➢ Bluetooth indicator light:

  ● The indicator light is always on in blue: it means that the bluetooth has been turned on, but the device is not connected with the wireless foot switch;

- The indicator light flashes in blue: it means that the device has been connected with the wireless foot switch, and they can communicate normally;

- The indicator light is off: the bluetooth is not turned on.

**Illuminating light ④**

➢ This indicator light is always on when the device is working

**Charging indicator light on the charging base ⑤**

➢ When the charging base is powered on, the charging indicator light on the charging base is always on in green;

➢ When the main frame is placed on the charging base to charge: the charging indicator light on the charging base is always on in blue.

## 4. Product Installation

### 4.1 Installation of Silicone Case

Align the silicone case with the head and gently put it on.

### 4.2 Installation of Working Tip

Align the thread on the working tip with the stud on the main frame, insert them together to make sure the thread matches correctly, and rotate gently clockwise.

Align the wrench with the slot of the working tip, rotate the wrench clockwise, and slowly apply force until the working tip is tightened.

After the working tip is tightened, deviation within 10° is normal.

⚠ **Warning:**

- When installing the working tip, please ensure that the main frame is powered off;

- When the working tip is installed on the main frame, it will not become loose or fall off to ensure that the working tip is firmly installed;

- Before inserting the working tip, check the assembly interface between the working tip and the main frame. Please do not use the damaged working tip or device;

- If the working tip is not firmly installed, it may lead to unpredictable rotation or the working tip may fall off, and even hurt the patient.

- Please use the original working tip;

- The working tip has not been disinfected and sterilized before leaving the factory. Please use it after sterilization;

- After each treatment, the working tip should be cleaned, disinfected and sterilized.

**4.3 Removal of Working Tip**

Align the wrench with the slot of the working tip, rotate the wrench counterclockwise to loosen the working tip, and continue to rotate the wrench until the working tip comes out.

⚠ **Caution:**

The number of use of the working tip should not exceed 20 operations, with the number of 2 root canals per operation as the reference.

⚠ **Warning:**

- When installing or removing the working tip, please be careful not to injure your finger;

- When installing or removing the working tip, please make sure the main frame stops working.

# 5. Product Use

## 5.1 Operation

**Start the device:** press and hold the switch button for 1 second, the device starts up and enters the standby state.

**Run the device:** in standby state, press the switch button to run the device, the power indicator light is on, the illuminating light opens, and the working tip begins to vibrate.

⚠ Warning:

- Once the device is started, please do not touch the working tip to avoid scalding;

- Please do not operate the device without flushing fluid in the root canal.

Make sure there is enough flushing fluid in the root canal for cooling during the use of the device;

⚠ Caution:

● Hold for 30 to 60 seconds at a time for a better cleaning effect.

**Switch between "high/low" power working states:** in the working state of the device, press and hold the switch button for 1 second to switch between high and low power working states. In the "high" power working state, the power indicator light is always on in green; in the "low" power working state, the power indicator light flashes in green.

**Stop working:** when pressing the switch button in the working state, the working tip will stop vibration, and the device will enter the standby state. The device will be powered off automatically after standby for 1 minute. Be sure to remove the working tip after the use of the device.

After 3 minutes of continuous working, the device will automatically turn off the output and enter the standby state; in the course of operation, if the device stops suddenly, restart the device. In addition, the device has the function of timing prompt, and there is a prompt tone every 5s in the working process.

⚠ Warning:

● Before using the device for treatment, try it out of the mouth to make sure the device is functional;

● The working tip may be damaged suddenly when it enters the root canal which is too curved or not in good shape. If the user feels uncomfortable, please stop using the device immediately.

● Even in normal use, the working tip may be separated from the main frame due to metal fatigue and wear. Please replace it in time. Please do not use the working tip more than its recommended times of use.

● When the working tip suffers excessive external force, it may break. When using this device, please do not apply excessive external force to the working tip.

- Please do not disassemble the working tip during the treatment, because it may scratch the operator or the patient.

⚠ Caution:

- Please stop using this device when any abnormalities occur. This device is not suitable for all types of root canals. Please do not use this device for extremely deformed root canals.
- Please use disposable gloves and rubber dam during treatment;
- Be sure to remove the working tip after each treatment.

**5.2 Charging**

Please use the charging base corresponding to this device for charging:

- Insert the USB cable into the power adapter (Figure a);
- Insert the USB cable into the charging base (Figure b);
- Connect the USB cable to the charging base and turn on the power. Then put the main frame of Actor I pro into the charging base for charging. When the main frame is placed in the charging base for charging, the main frame will be powered off automatically. The charging indicator light of the main frame will always be on in green. If it goes off, the charging is completed. When the charging base is powered on, the charging indicator light on the charging base is always on in green, and when the main frame is placed on the charging base, the charging indicator light on the charging base turns to be on in blue. It is expected that the time for the device to be fully charged is about 4 hours, which can guarantee the operation of the device in the state of maximum power consumption for about 3 hours.
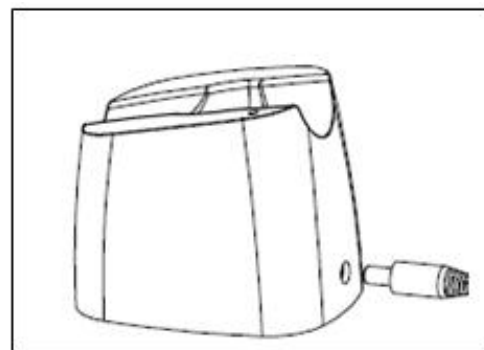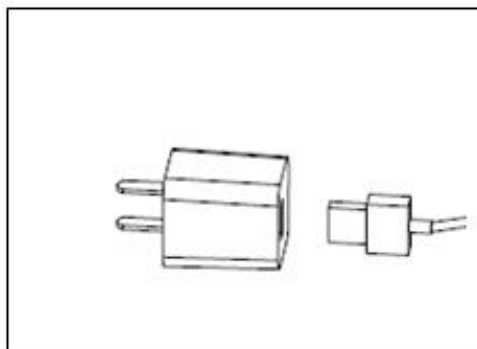
⚠ Caution:

- When the battery power indicator light flashes in yellow, accompanied by the prompt tone, the battery power is low, and the device should be charged in time;

- The battery used in this product lacks of memory property and can be charged at any time;

- Please charge the device for at least 4 hours before the first charge;

- When the main frame is inserted into the charging base, but it does not enter the charging state, please stop charging it immediately and then contact the local distributor;

- When charging with the charging base, please place the charging base or the main frame in a dry and safe place where they are not easily knocked over;

- Please use the power adapter and cable provided by the manufacturer for charging;

- After the battery is discharged completely, the battery may not be recharged, thus causing it to be damaged. When the device is not used for a long time, it should be fully charged every one to two months;

- Do not place the charging base or main frame in dust, or especially in the environment with metal debris. Please pay special attention to the protection of charging port;

- Please pull out the main frame vertically upward after full charge.

## 5.3 Wireless Foot Control

We always design the product from the perspective of the doctor's use to make its operation easier. Actor I pro is a safe, accurate, compact and convenient product. When a doctor performs root canal treatment on the molar teeth, they need to go deep into the mouth, so it is inconvenient to press the buttons on the device. In order to provide doctors with more convenient operation experience, we also provide an optional wireless control solution. You can choose our wireless foot switch to achieve this function.

Actor I pro can be connected wirelessly with our wireless foot switch through bluetooth. After successful connection, the operation of Actor I pro can be controlled within 5 meters.

Bluetooth connection setting of Actor I pro:

➢ Step on any button of the foot switch to open the power supply of the foot switch;

➢ Turn on the power of Actor I pro, press the bluetooth button ③, turn on the bluetooth, and the indicator light is always on in blue; Actor I pro will automatically search, pair and connect to the wireless foot switch.

➢ After the connection is successful, the bluetooth indicator light flashes. After pressing and holding any button of the foot switch, Actor I pro starts to run; release the button to stop its operation;

⚠ Caution:

● Only when the wireless foot switch is in standby state, the bluetooth can be turned on by pressing the bluetooth button of Actor I pro;

● This device is only for one-to-one connection through bluetooth, that is, one module can only be connected with one product;

● When multiple devices are searching and pairing at the same time, the target device may not be connected, so please pair it with one to one separately;

● When turning on the bluetooth function, please stay away from other bluetooth, WiFi and other 2.4G wireless products;

● After successful bluetooth connection, the device information of the wireless foot switch will be automatically saved in the internal storage space of Actor I pro. This function is turned off by default.

# 6. Troubleshooting

| Fault phenomenon | Check items | Fault analysis and handling method | Reference chapter or section |
|---|---|---|---|
| The device does not work after starting up | The battery power is low. | Charge it in time. | 5.2 |
| | The time to press the switch button is too short | Please press and hold the switch button | 5.1 |
| The device is not charged properly | The wrong power adapter is used | Please use the original power adapter | 1.5 |
| | The charging base is not powered on | Please check the connection | 5.2 |
| | The main frame is not inserted into the charging base properly | Please check whether there is any foreign body in the main frame | 5.2 |
| The working tip fails to vibrate | 1. The working tip is not tightened;<br>2. The working tip is damaged.<br>3. The main frame is damaged | 1. Tighten the working tip with a wrench;<br>2. Replace the working tip with a new one.<br>3. Please contact the distributor | 4.2 |
| The indicator light on the main frame is not on | The main frame is damaged | Please contact the distributor | 3 |
| The main frame has not sound | The mainboard is damaged | Please contact the distributor | 5.1 |
| The main frame gives an alarm and the battery power indicator light is on | The battery power is low | Please charge it in time | 5.2 |

# 7. Cleaning, Disinfection and Sterilization

⚠ **Caution:**

● No part of Actor I pro is sterilized before leaving the factory

⚠ **Warning:**

● Please do not soak the main frame in the ultrasonic cleaning machine
● It is recommended to use a soft cloth soaked in alcohol to wipe and disinfect the surface of the main frame of Actor I pro;
● Please do not use liquid or spray cleaner directly on the main frame.
● Please do not disinfect the main frame by heating;
➢ Parts of the Actor I pro that can be sterilized include the working tip, wrench, and silicone case

The work tip, wrench and silicone case have biocompatibility (in line with standard EN ISO 10993-1). The work tip, wrench and silicone case must be sterilized before they are used for each patient. High temperature and high pressure steam sterilization method is recommended. The recommended high temperature and high pressure steam sterilization parameters are as follows:

a) Perform steam sterilization at 134℃ for 5 minutes (placed in a sterilization bag). The sterilization temperature should not exceed 135℃. The steam sterilizer shall be used in accordance with Standard EN 13060.

b) The working tip, wrench, and silicone case can be repeatedly sterilized.

⚠ Warning:

● Except for the above mentioned working tip, wrench, and silicone case, no other parts of Actor I pro can be sterilized
● Do not sterilize by heating, radiation, formaldehyde, ethylene oxide and plasma.

## 7.1 Cleaning and Sterilization of Working Tip, Wrench and Silicone Case

1) Cleaning

| Steps | Parameters |
|---|---|
| 1. Wash | Wash the working tip, wrench and silicone case with running water for 2 minutes to remove their surface contaminants. |
| 2. Wipe | Wet the soft clean cloth in the cleaner, and then use it to wipe the surface of the working tip, wrench and silicone case thoroughly 5 times. Replace it with a new one after each wipe. If there are still visible contaminants, wipe repeatedly until no contaminants are visible to naked eyes. |
| 3. Scrub | Scrub the working tip, wrench and silicone case thoroughly for 3 minutes with an instrument brush with cleaner. |
| 4. Soak | Soak the working tip, wrench and silicone case in the cleaner for 5 minutes. |
| 5. Rinse | Rinse the working tip, wrench and silicone case with purified water for 2 minutes to remove residual cleaner on its surface. |
| 6. Dry | Use a dry, absorbent and soft cloth to wipe the residual water on the surface of the working tip, wrench and silicone case. |

2) Sterilization

| Steps | Parameters |
|---|---|
| Sterilize | Put the cleaned working tip, wrench and silicone case into the disposable sterilization bag. The sterilization temperature should be 134°C. The sterilization time should be 5 minutes. The pressure should be 205.8kPa. |

# 8. Storage, Maintenance and Transportation

1. Storage
   a. This product should be handled with care, kept away from earthquake source, and stored in a dry and ventilated place.
   b. This product should not be placed together with toxic, corrosive, flammable and explosive items.
   c. The relative humidity of the storage environment should be 10%~80%, the atmospheric pressure should be 500-1060hPa, and the temperature should be -10℃~ +50℃.
2. Maintenance
   a. This product does not contain self-repair spare and accessory parts. Repair of this product should only be carried out by specialized maintenance personnel or special repair shops.
   b. Please keep this product dry. Rainwater, moisture and liquids may contain minerals that can corrode the electronic circuit of this product.
   c. Do not throw, knock or vibrate this product. Rough handling of this product may damage its internal circuit board and wires.
   d. Do not apply paint to this product, as it will leave debris in the removable parts, thus affecting its normal operation.
3. Transportation
   a. During the transportation, excessive impact and vibration should be prevented. Handle it with care. placing it upside down should be avoided.
   b. This product should not be transported together with dangerous goods.
   c. This product should not be exposed to the sun, rain or snow during transportation.

## 9. Technical Parameters

| | |
|---|---|
| Manufacturer | Changzhou Bomedent Medical Technology Co., Ltd. |
| Product name | Ultrasonic Endo Activation Device |
| Model | Actor I pro |
| Dimensions | Main frame: 169*26*28mm<br>Charging base: 82*64*73 mm |
| Weight | 700g |
| Power supply mode | Lithium battery, DC 3.7V, 1600mAh |
| Charging base | Input: DC5V/1A<br>Output: DC 5V, 0.5A max |
| Power adapter | Input: AC100-240V, 50/60Hz 0.15A max<br>Output: DC5V/1A |
| Liquid permeation protection | IPX0 |
| Classification of electric shock protection type | Class II, Internal power unit |
| Classification of electric shock protection level | Class B |
| Main vibration offset of working tip | <100μm |
| Vibration frequency of working tip | 45kHz±5kHz |
| Effective connection range of bluetooth | ≤5m |
| Power consumption | <3W |
| Use environment | Temperature: 10-40℃<br>Humidity: 10-70%<br>Atmospheric pressure: 700-1060hPa |
| Storage/transportation environment: | Temperature: -10-50℃<br>Humidity: 10-80%<br>Atmospheric pressure: 500-1060hPa |
| Expected service life | 4 years |

# 10. Symbol Description

| | | | |
|---|---|---|---|
|  | Refer to the user manual |  | Warning: please read this manual before use |
|  | Type B application device |  | Class II device |
|  | The product complies with the directive on WEEE. This device must be disposed of as municipal solid waste when abandoned |  | Serial number |
|  | Manufacturer |  | Date of manufacture |
|  | For indoor use |  | Upward |
|  | Damp-proof |  | Fragile. Please handle it with care |

# 11. Environmental Protection

This product does not contain harmful ingredients and can be disposed and destroyed according to the relevant local regulations.

# 12. After-sales Service

Since the date of sale, if this device cannot work normally due to quality problems, it can be repaired by our company or the designated agent by showing your warranty card. Please refer to the warranty card for warranty period and scope.

## 13. EMC Statement

Special precautions regarding electromagnetic compatibility (EMC) should be taken for this Ultrasonic Endo Activation Device, and it must be installed and used in accordance with the EMC information specified in this manual.

Portable and movable RF communication equipment may affect this device.

With the exception of cables (transducers) sold as spare parts for internal components, the use of accessories and cables (transducers) other than those specified may result in an increase in emission or a decrease in immunity of this device or system.

This device or system shall not be used in proximity to or on top of other devices, and if it must be used in proximity to or on top of other devices, it shall be observed to verify that it can work properly in the configuration in which it is used.

| Guidance and manufacturer's declaration – electromagnetic emissions | | |
|---|---|---|
| The device is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that is used in such an environment. | | |
| Emission test | Conformity | Emission test Conformity Electromagnetic Environment – guidance |
| RF Emissions CISPR11 | Group 1 | The appliance use RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment. |
| RF Emissions CISPR11 | Class B | The device is suitable for use in all establishments, including domestic establishments and those directly connected to the public low-voltage power supply network that supplies buildings used for domestic purposes. |
| Harmonic emissions IEC61000-3-2 | Class A | |
| Voltage fluctuations/ flicker emissions IEC 61000-3-3 | Conforms | |

| Guidance and manufacturer's declaration – electromagnetic emissions | | | |
|---|---|---|---|
| The device is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that is used in such an environment. | | | |
| Immunity test | IEC60601 test level | Compliance Level | Electromagnetic environment – guide |
| Electrostatic discharge(ESD) EN 61000-4-2 | ± 6kV contact ± 8kV air | ± 6kV contact ± 8kV air | Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%. |
| Electrical fast transient/burst, IEC 61000-4-4 | ± 2 kV for power supply lines ± 1 kV for input/ Output lines | ± 2 kV for power supply lines | Mains power quality should be that of a typical commercial or hospital environment. |
| Surge IEC 61000-4-5 | ± 1 kV differential mode ± 2 kV common mode | ± 1 kV differential mode ± 2 kV common mode | Mains power quality should be that of a typical commercial or hospital environment. |
| Voltage dips, short interruptions and voltage variations on power supply input lines IEC 61000-4-11 | < 5 % UT ( > 95 % dip in UT) for 0.5 cycles 40 % UT ( 60 % dip in UT) for 5 cycles < 5 % UT 70 % UT ( 30 % dip in UT) for 25 cycles < 5 % UT < 5 % UT ( > 95 % dip in UT) for 5 s | < 5 % UT ( > 95 % dip in UT) for 0.5 cycles 40 % UT ( 60 % dip in UT) for 5 cycles < 5 % UT 70 % UT ( 30 % dip in UT) for 25 cycles < 5 % UT < 5 % UT ( > 95 % dip in UT) for 5 s | Mains power quality should be that of a typical commercial or hospital environment. If the user of the device requires continued operation during power mains interruptions, it is recommended that the device be powered from an uninterruptible power supply or a battery. |
| Power frequency (50/60 Hz) magnetic field IEC 61000-4-8 | 3 A/m | 3 A/m | Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment. |
| **NOTE:** UT is the a.c. mains voltage prior to application of the test level. | | | |

| Guidance and manufacturer's declaration – electromagnetic emissions | | | |
|---|---|---|---|
| The device is intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that is used in such an environment. | | | |
| Immunity test | level EN 60601-1-2 | Compliance Level | Electromagnetic environment – guide |
| Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3 | 3 Vrms 150 kHz to 80 MHz 3 V/m 80 MHz to 2.5 GHz | 3 Vrms 3 V/m | Portable and mobile RF communications equipment should be used no closer to any part of the device, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $$d = 1.2\sqrt{P}$$ $$d = 1.2\sqrt{P} \quad \text{80 MHz ~ 800 MHz}$$ $$d = 2.3\sqrt{P} \quad \text{800 MHz ~ 2.5 GHz}$$ Where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer and d is the recommended separation distance in meters (m). Field strengths from fixed RF transmitters as determined by an electromagnetic site survey, should be less than the compliance level in each frequency range. Interference may occur in the vicinity of equipment marked with the following symbol: |
| NOTE 1：At 80 MHz and 800 MHz, the higher frequency range applies. NOTE 2：These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures objects and people. | | | |
| a)    Field strengths from fixed transmitters, such as base stations for radio (cellular/cordless) telephones and land mobile radios, amateur radio, AM and FM radio broadcast and TV broadcast cannot be predicted theoretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site survey should be considered. If the measured field strength in the location in which the device is used exceeds the applicable RF compliance level above, the device should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as re-orienting or relocating the device. b)    Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3 V/m. | | | |

| Recommended separation distances between portable and mobile RF communications equipment and the device | | | |
|---|---|---|---|
| The device is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. The customer or the user of the device can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF according to the maximum output power of the communications equipment. | | | |
| Rated maximum output power of transmitter Watts [W] | Separation distance according to frequency of transmitter (in meters) Meters [m] | | |
| | 150 kHz ~ 80 MHz $d = 1.2\sqrt{P}$ | 80 MHz ~ 800 MHz $d = 1.2\sqrt{P}$ | 800 MHz ~ 2.5 GHz $d = 2.3\sqrt{P}$ |
| 0.01 | 0.12 | 0.12 | 0.23 |
| 0.1 | 0.38 | 0.38 | 0.73 |
| 1 | 1.2 | 1.2 | 2.3 |
| 10 | 3.8 | 3.8 | 7.3 |
| 100 | 12 | 12 | 23 |
| For transmitters rated at a maximum output power not listed above, the recommended separation distance d in meters (m) can be estimated using the equation applicable to the frequency of the transmitter, where P is the maximum output power rating of the transmitter in watts (W) according to the transmitter manufacturer. NOTE 1：At 80 MHz and 800 MHz, the separation distance for the higher frequency range applies. NOTE 2：These guidelines may not apply in all situations. Electromagnetic propagation is affected by absorption and reflection from structures, objects, and people. | | | |

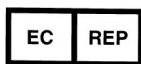After-sales service company: Changzhou Bomedent Medical Technology Co., Ltd.

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