

Ultra *X*

**Ultrasonic Endo Activation Device
USER MANUAL**

Changzhou Sifary Medical Technology Co.,Ltd.

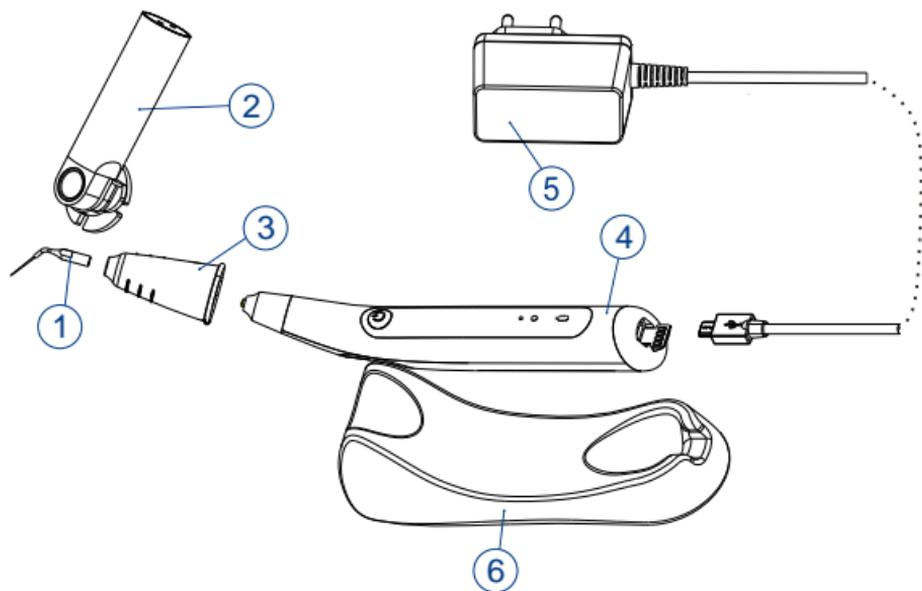
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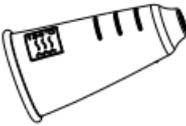
1.Scope of Ultra X

1.1 Parts identification

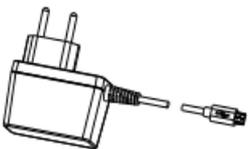
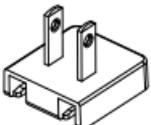


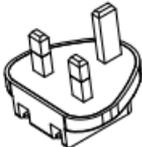
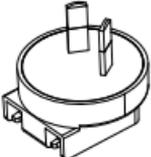
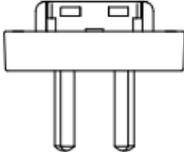
- ① Tips (6pcs)
- ② Wrench
- ③ Insulating Sleeve
- ④ Main Unit
- ⑤ Adapter
- ⑥ Main Unit Base

1.2 Components

<p>Main unit (1pc) 6251001</p> 	<p>Tip: SBG20(1pc) 6251127 S20(6201032), B20(6251031), G20(6251021)</p> 	<p>Tip: SBG25(1pc) 6251129 S20(6201032), B25(6251033), G25(6251023)</p> 
<p>Wrench (1pc) 6251007</p> 	<p>Insulating sleeve (1pc) 6204002</p> 	<p>Main unit base (1pc) 6005002</p> 

For different regions, there are several different adapter options to be selected as follows.

Standard	Adapter	Power plug
<p>European standard</p>	<p>Adapter (1pc) 6016020</p> 	<p>/</p>
<p>American standard</p>	<p>Adapter (1pc) 6016007</p> 	<p>American standard power plug (1pc) 6016011</p> 

Multi- standard		British standard power plug (1pc) 6016009 
	Adapter (1pc) 6016007 	Australian standard power plug (1pc) 6016010 
		Argentina standard power plug (1pc) 6016014 

2.Symbols Used

	General warning sign
	Caution
	Serial number
	Catalogue number
	Batch code
	Manufacturer
	Country of manufacture+ Date of manufacture
	Class II equipment
	Type B applied part
	CE marking
	Direct current
	Dispose of in accordance with the WEEE directive
	Keep dry
	Refer to instruction manual
	Sterilizable in a steam sterilizer (autoclave) at the temperature specified

2 Symbols Used

	Authorized Representative in the European Community
	Temperature limit
	Humidity limitation
	Atmospheric pressure limitation
	Washer-disinfector for thermal disinfection
	Manufacturer's Logo
	Medical Device

3.Before Use

3.1 Intended purpose

Ultra X is used in endodontic treatment by application of ultrasonic energy. The Ultra X can provide the energy for tip oscillation and vibration in frequency (45kHz±5kHz) required to create sufficient acoustical streaming and cavitation necessary to effectively clean, penetrate, and remove vapor lock. A cleaned root canal system makes for better outcomes and reduces retreatment rate.

This device must only be used in hospital environments, clinics or dental offices by qualified dental personnel and not used in the oxygen-rich environment.

3.2 Contra-indications

The Ultra X is contraindicated in cases where patient/user carry medical implants such as pace makers or cochlear implants etc.

The patients who have hemophilia or allergic patients are not allowed to use in this equipment.

Do not use the device for implants or other non-endodontic dental procedures.

Safety and effectiveness have not been established in pregnant women and children.



Read the following warnings before use:

- The device must not be placed in humid surroundings or anywhere where it can come into contact with any type of liquids.
- Do not expose the device to direct or indirect heat sources.

The device must be operated and stored in a safe environment.

- The device requires special precautions with regard to electromagnetic compatibility (EMC) and must be installed and operated in strict compliance with the EMC information. In particular, do not use the device in the vicinity of fluorescent lamps, radio transmitters, remote controls and do not use this system near the active HF Surgical Equipment in the hospital. Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the Ultra X, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result. Please charge at least 4 hours before first use. Do not charge, operate or store at high temperatures. Comply with the specified operating and storage conditions.
- Gloves and a rubber dam are compulsory during treatment.
- If irregularities occur in the device during treatment, switch it off. Contact the agency.
- If the battery leaks or the machine enters the liquid, contact your distributor.
- Never open or repair the device by yourself, other-wise, void the warranty.
- Cautions should be exercised when use Ultra X in extremely curved root canals due to the oscillation limitation. Besides, this device is only recommended as a final irrigation.

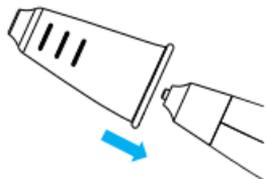
3.3 Intended user profile

Considerations	Requirement Description
Education	A licensed dentist, dental hygienist and graduates of relevant bachelor's degree (national qualifications).
Knowledge	The operator must have understood: 1.treatment and diagnosis of dental disease; 2.terms and guidance of diagnostic medical devices; 3.device connection, installation and operating conditions.
Language understanding	The operator must have understood: the English manuals.
Experience	The operator must have understood: 1.objectives and effects of treatment and diagnosis of dental disease using diagnostic medical devices; 2.normal operation of diagnostic medical devices; 3.the contents of the user manual.

4. Setting up the Ultra X

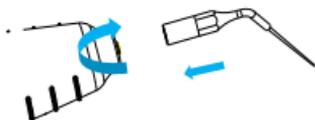
4.1 Installing the sleeve

Always use a silicone sleeve.



4.2 Installing the tip

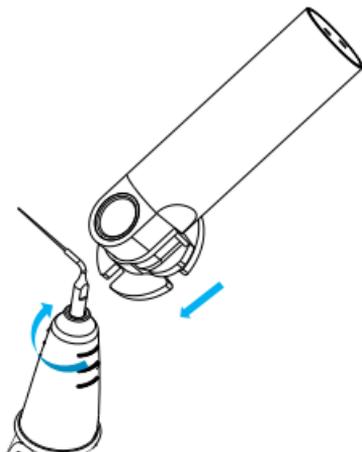
Make sure the thread on the tip is aligning to the stud of the Main unit. Plug them together and turn it carefully.



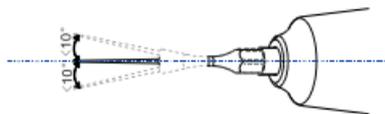
- Only the original tip can be used.
- The Activator tips are not sterile when delivered and must be autoclaved before being used for the first time.

- Clean and disinfect the Activator tips before every use.

Tighten the tip clockwise with provided wrench until the tip secure.



When you set the tip on the device, the tip can be set within a range of 10°, therefore, do not tighten the tip in excess.

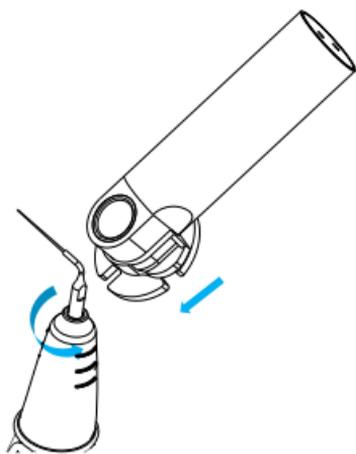


- Inspect the tip before inserting. Do not use the damaged tip.

- Make sure the device is stopped when inserting and removing tips.
- Pull the tip gently to make sure that the tip is secure in Main unit properly, otherwise it may pop out and hurt the patient.

4.3 Tip removal

Loosen the tip counterclockwise with provided wrench until the tip shedding.

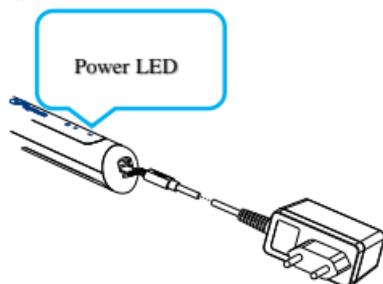


- Estimated case number of uses per tip: 20, taking 2 root canals per case as a reference.

Be careful when inserting and removing tips to avoid injury to fingers.

4.4 Connecting the adapter

Connect the USB cable to the Main unit power connector, and plug the other end into a power outlet. The Power LED on the Main unit will flash (yellow).



- Don't position the device where it is difficult to operate the disconnection device.
- Do not spray alcohol on the Main unit power connector and do not use conductive objects to probe the Main unit power connector.



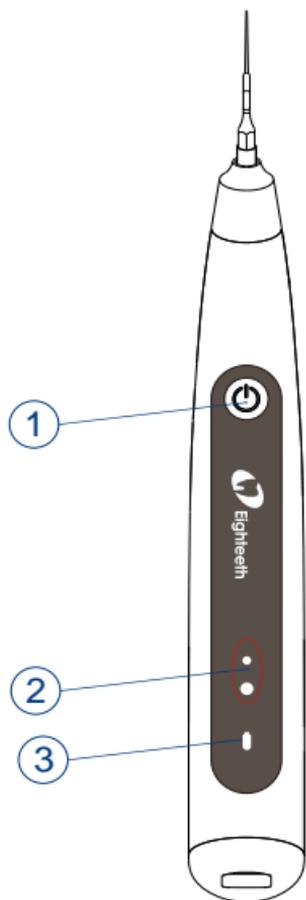
- Only the original adapter can be used.
- Do not use the device while charging.
- The Main unit power connector can only be used to connect the original adapter cord for charging purpose.
- Only the original accessories can be used.

Main unit base is recommended to be used to place the Ultra X to protect the tip when the device is not in use.



5.Use Interface

5.1 Panel key



- ①  Main switch
- ② Mode LED
- ③ Power LED

Turn Power On

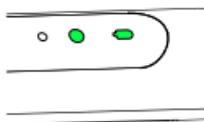
Press  to turn on the device.

Output Power Adjustment

Long press  can switch to “High Output Power Mode” or “Low Output Power Mode” during working.



HIGH OUTPUT POWER MODE



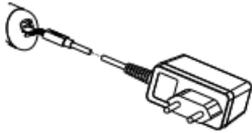
LOW OUTPUT POWER MODE

Turn Power Off

Press  to turn off the output during working. The Ultra X will turn off the output and enters the standby state. The Ultra X will shut down after 1 minute of standby automatically.

6.Operation

6.1 Charge

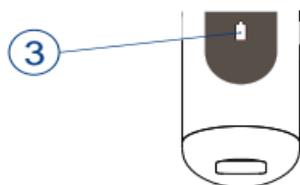
Power LED light up in "GREEN"	Battery power is >50%.
Power LED light up in "YELLOW"	Battery power is 15%~50%.
Power LED light up in "RED"	<p>Battery power is <15%.</p>  <ul style="list-style-type: none"> ● If the power is less than 15%, the device must be recharged within 30 days, otherwise the battery will be damaged.
Power LED flashes in "RED"	<p>Battery power is <5%. The device will stop working and have voice prompt, please charge immediately.</p>  <ul style="list-style-type: none"> ● The remaining amount of battery mark indicates a voltage. When a load is applied to the Main unit, the remaining amount of battery mark appears to become lower.
	Connect the adapter to the Main unit.



- Only the original adapter can be used.

Charging indication appears on the power LED, and flashes in “YELLOW”(③), when the battery is fully charged or in a state near full charge, the flash will stop and light up in “GREEN” (③).

Fully charged will take about 4 hours, depending on residual battery power and battery state.



It can be recharged 300-500 times, depending on the operating conditions of the device.

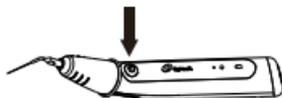


- When charging, other function will forcibly stop and get in to the charging mode.
- When the device is not used for a long time, please charge the device at least once a month.

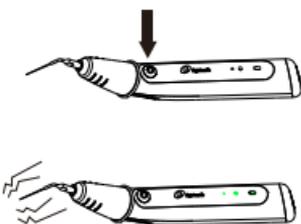


- Do not change the battery, only trained technician or distributor can change the battery, the electronic parts will be damaged if use a wrong battery or install with a wrong way.

6.2 Operation



Turn on the device: Press on main switch to turn on the device. Power LED will light up.



Turn on the device: Press on main switch to turn power on. Power LED and Mode LED will light up.



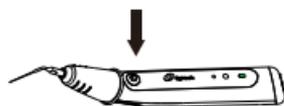
- Once the device is started, it will vibrate at the ultrasonic frequency. Do not touch the tip at this time.
- Do not let the device vibrate for a long time without load.
- Ensure that there is sufficient rinsing fluid for cooling during use. Do not operate without flushing fluid.
- Ensure that the tip is upper 2mm from working length when moving the tip up and down.
- Activate intracanal solution for 30-60 seconds for optimal canal cleanliness.



Long press on main switch for more than 1s during working, you can switch the output power in cycle.



- Select the appropriate power gear for treatment according to the actual root canal environment.



Turn off the device: Press on main switch to turn off the device. The Ultra X will turn off the output and enters the standby state. The Ultra X will shut down after 1 minute of standby automatically.

The Ultra X will automatically shut down after 3 minutes of continuous operation; In addition, the machine has a timed reminder function, and there is a beep every 5s during the work.



- Use the Ultra X outside the oral cavity to make sure that the device is functioning properly.
- Replace the tip on time to avoid file separation within the canal. Tips may separate because of metal fatigue.
- Heavy force / hand pressure on Main unit while using may even cause tip separation.



- If there is any abnormal functioning, stop using the device and report to the company.
- This device is not suitable for all types of root canals. Do not use this device on extremely deformed root canal.
- Do not forget to remove the tip from the device after its use.
- Place the Ultra X on the Main unit base to prevent accidental drop when the device is not in use.

7. Cleaning, Disinfection and Sterilization

7.1 Foreword

For hygiene and sanitary safety purpose, the components (Tips, Wrench, and Insulating sleeve) must be cleaned, disinfected and sterilized before each usage to prevent any contamination. This concerns the first use as well as the subsequent uses. Comply with your national guidelines, standards and requirements for cleaning, disinfection and sterilization.

Reprocessing procedures have only limited implications to this dental instrument. The limitation of the numbers of reprocessing procedures is therefore determined by the function / wear of the device. From the processing side there is no maximum number of allowable reprocessing. The device should no longer be reused in case of signs of material degradation.

In case of damage, the device should be reprocessed before sending back to the manufacturer for repair.

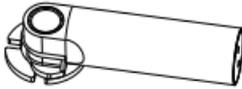
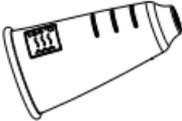
7.2 General recommendations

- ◆ The user is responsible for the sterility of the product for the first cycle and each further usage as well as for the usage of damaged or dirty instruments, where applicable after sterility.
- ◆ For your own safety, please wear personal protective equipment (gloves, safety glasses, etc.).
- ◆ Use only a disinfecting solution which is approved for its efficacy (VAH/DGHM-listing, CE marking, and FDA approval) and in accordance with the DFU of the disinfecting solution manufacturer.
- ◆ The water quality has to be convenient to the local regulations especially for the last rinsing step or with a washer-disinfector.
- ◆ Thoroughly clean and wash the components before

autoclaving.

- ◆ Do not clean the tips and wrench with an ultrasonic cleaning device.
- ◆ Do not use bleach or chloride disinfectant materials.

7.3 Autoclavable components

Autoclavable components		
Tip 	Wrench 	Insulating sleeve 
<div style="text-align: center;">  </div> <ul style="list-style-type: none"> ● Only the components above can be autoclaved. ● Before first use and after each use, sterilize the above components. 		
Reprocessing Instructions		
<p>Preparation at the Point of Use:</p>	<p>Disconnect the components (Tips, Wrench, and Insulating sleeve) before cleaning. Refer to "Chapter 4- Setting up the Ultra X" of this manual for disassembly instructions. Remove gross contaminations from the components with code water (<math><40^{\circ}\text{C}</math>) immediately after use. Don't use a fixating detergent or hot water (>math>>40^{\circ}\text{C}</math>) as this can cause the fixation of residuals which may influence the result of the reprocessing process.</p>	

	<p>Store the instruments in a humid surrounding.</p>  <ul style="list-style-type: none"> Do not submerge the components or wipe them with any of the following functional water (acidic electrolyzed water, strong alkaline solution, or ozone water), medical agents (glutaral, etc.), or any other special types of water or commercial cleaning liquids. Such liquids may result in metal corrosion and adhesion of the residual medical agents to the components.
Transportation:	<p>Safe storage and transportation to the reprocessing area to avoid any damage and contamination to the environment.</p>
Preparation for Decontamination:	<p>The devices must be reprocessed in a disassembled state.</p>  <ul style="list-style-type: none"> Observe suitable personal protective measures.
Pre-Cleaning:	<p>Do a manual pre-cleaning, until the components are visually clean. Submerge the components in a cleaning solution and flush the lumens with a water jet pistol with cold tap water for at least 10 seconds. Clean the surfaces with a soft bristol brush.</p>

Cleaning:

Regarding cleaning/disinfection, rinsing and drying, it is to distinguish between manual and automated reprocessing methods. Preference is to be given to automated reprocessing methods, especially due to the better standardizing potential and industrial safety.

Automated Cleaning:

Carefully put the components into the washer-disinfector on a tray and set the parameters as follows, then start the program:

- 1) 4 mins pre-washing with cold water (<40°C);
- 2) emptying
- 3) 5 mins washing with a mild alkaline cleaner at 55°C;
- 4) emptying
- 5) 3 mins neutralising with warm water (>40°C);
- 6) emptying
- 7) 5 mins intermediate rinsing with warm water (>40°C);
- 8) emptying

The automated cleaning processes have been validated by using 0.5% neodisher MediClean forte (Dr. Weigert).

Note Acc.to EN ISO 17664 no manual reprocessing methods are required for these devices. If a manual reprocessing

	<p>method has to be used, please validate it prior to use.</p>  <ul style="list-style-type: none"> ● Use only approved washer-disinfectors according to EN ISO 15883, maintain and calibrate it regularly. ● Follow instructions and observe concentrations given by the manufacturer (see general recommendations).
<p>Disinfection:</p>	<p>Automated Thermal Disinfection in washer/disinfector under consideration of national requirements in regards to A0 value (see EN ISO 15883). A disinfection cycle of 5 mins disinfection at 93°C has been validated for the device to achieve an A0 value of 3000. After manual cleaning, the instruments should be automated disinfected or sterilized immediately. A manual disinfection is not recommended.</p>
<p>Drying:</p>	<p>Automated Drying: Drying of outside of instrument through drying cycle of washer/disinfector. If needed, additional manual drying can be performed through lint free towel. Insufflate cavities of instruments by using sterile compressed air.</p>

Functional Testing, Maintenance:	<p>Visual inspection for cleanliness of the instruments and reassembling. Functional testing according to instructions of use. If necessary, perform reprocessing process again until instrument is visibly clean. Before packaging and autoclaving, make sure that the components have been maintained acc. to manufacturer's instruction.</p>
Packaging:	<p>Pack the instruments in an appropriate packaging material for sterilization.</p> <div data-bbox="381 581 957 984" style="background-color: #e0e0e0; padding: 10px;">  <ul style="list-style-type: none"> ● Check the validity period of pouch given by the manufacturer to determine the shelf life. ● Use pouches which resist to a temperature up to 141 °C and in accordance with EN ISO 11607. </div>
Sterilization:	<p>Sterilization of instruments by applying a fractionated pre-vacuum steam sterilization process (according to EN 285/EN 13060/EN ISO 17665) under consideration of the respective country requirements.</p> <p>Minimum requirements: 3 mins at 134 °C (in EU: 5 mins at 134 °C). Maximum sterilization temperature: 137°C.</p>

Drying time: at least 8mins.
Flash sterilization is not allowed on lumen instruments!



- Use only approved autoclave devices according to EN 13060 or EN 285.
- Use a validated sterilization procedure according to EN ISO 17665.
- Respect the maintenance procedure of the autoclave device given by the manufacturer.
- Use only this recommended sterilization procedure.
- Control the efficiency (packaging integrity, no humidity, color change of sterilization indicators, physicochemical integrators, digital records of cycles parameters).
- The sterilization procedure must comply with EN ISO 17665.
- Waiting for cooling before touching.

Storage:

Storage of sterilized instruments in a dry, clean and dust free environment at modest temperatures, refer to label and instructions for use.



- Sterility cannot be guaranteed if

	<p>packaging is open, damaged or wet.</p> <ul style="list-style-type: none"> ● Check the packaging before using it (packaging integrity, no humidity and validity period).
<p>Reprocessing validation study information:</p>	<p>The above-mentioned reprocessing process (cleaning, disinfection, sterilization) has been successfully validated. Refer to test reports: Changzhou Sifary _Cleaning Disinfection Validation Report No. RDS2020D0065 001 Changzhou Sifary _Sterilization Validation Report_20/02-21mm Tips (silver) Report No. RDS2020S0072 001 Changzhou Sifary _Sterilization Validation Report_25/02-18mm Tips (blue) Report No. RDS2020S0071 001</p>
<div style="text-align: center;">  </div> <ul style="list-style-type: none"> ● The instructions provided above have been validated by the manufacturer of the medical device as being capable of preparing a medical device for use. It remains the responsibility of the processor to ensure that the processing, as actually performed using equipment, materials and personnel in the processing facility, achieves the desired result. This requires verification and/or validation and routine monitoring of the process. Likewise, any deviation by the processor from the instructions provided should be properly evaluated for effectiveness and potential adverse consequences. 	

7.4 Disinfection components

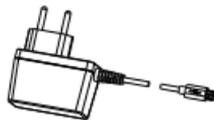
Main unit



Main unit Base



Adapter



Wipe all the surfaces with a cloth lightly moistened with Ethanol for Disinfection (Ethanol 70 to 80vol%) at least 2mins, repeat for 5 times.



- Do not use anything except Ethanol for Disinfection (Ethanol 70 to 80 vol%).
- Do not use too much ethanol as it's going into machine and damage the components inside.
- Before first use and after each use, disinfection the above components.

8.Error Indication

<p>The device stops working and beeping with Power LED flashes in red.</p>	<p>The power is very low. Charge it immediately.</p>
<p>Power LED lights up in "BLUE".</p>	<p>The main board is broken. Please stop using the device immediately and remove the battery. Contact your local distributor.</p>

9.Troubleshooting

When trouble is found, check the following points before contacting your distributor. If none of these are applicable or the trouble is not remedied even after action has been taken, the product may have failed. Contact your distributor.

Problem	Cause	Solution	Ref. chap
The power is not turned on.	The battery is run down.	Charge the battery.	6.1
	The time to press the main switch is too short.	Press the main switch more than 0.5 seconds.	6.2
The Power LED does not light up when charging.	Use a wrong adapter.	Use the original adapter.	6.1
	There is no electricity in the outlet.	Check the connection.	
	The adapter is not connected.	Check the connection.	/
	The plug of the adapter is not inserted into the outlet.	Check the connection.	/
The Power LED lights up in "BLUE".	The main board is broken.	Contact your distributor.	/

The LEDs on Main unit do not light up.	The Main unit is broken.	Contact your distributor.	/
Tip does not vibrate.	Tip is not installed in place.	Check the installation.	/
	Tip is broken.	Replace a new tip.	
	The main board is broken.	Contact your distributor.	/
There is no beep.	The main board is broken.	Contact your distributor.	/
There is beeping	Battery power is very low.	Charge the battery immediately.	6.1

10. Technical Data

Manufacturer	Changzhou Sifary Medical Technology Co., Ltd.
Model	Ultra X
Dimensions	21.5cm×10cm×10cm±1cm (package)
Gross weight	680g±10%
Power supply	Lithium ion battery : 3.7V, 1500mAh ±10%
Charger power supply	AC100-240V, ±10%
Charger power output	5V  1A
Frequency	50/60Hz, ±10%
Charger power input	0.2A
Output frequency	45kHz±5kHz
Primary tip vibration excursion	<100 μm
Electrical safety class	Class II
Applied part	B (Tip)
Operating mode	Intermittent operation 3mins. ON / 0.5mins. OFF
Ambient conditions	Use: in enclosed spaces Ambient temperature: 10°C ~ 40°C Relative humidity: 30%~75% Atmospheric pressure: 70kPa~106 kPa

10 Technical Data

Transport and storage conditions	Ambient temperature: -20°C ~ +55°C Relative humidity: 20%~80% Atmospheric pressure: 70kPa~106 kPa
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11.EMC Tables

Guidance and manufacturer's declaration – electromagnetic emissions

The **Ultra X** is intended for use in the electromagnetic environment specified below. The customer or the user of the **Ultra X** should assure that it is used in such an environment.

Emissions test	Compliance	Electromagnetic environment – guidance
RF emissions CISPR 11	Group 1	Professional healthcare facility environment and Home healthcare environment.
RF emissions CISPR 11	Class B	
Harmonic emissions IEC61000-3-2	Class A	Professional healthcare facility environment.
Voltage fluctuations/flicker emissions IEC 61000-3-3	Compliance	



The EMISSIONS characteristics of this equipment make it suitable for use in industrial areas and hospitals (CISPR 11 class A). If it is used in a residential environment (for which CISPR 11 class B is normally required) this equipment might not offer adequate protection to radio-frequency

communication services. The user might need to take mitigation measures, such as relocating or re-orienting the equipment.

Guidance and manufacturer's declaration – electromagnetic immunity

The **Ultra X** is intended for use in the electromagnetic environment specified below. The customer or the user of the **Ultra X** should assure that it is used in such an environment.

Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment - guidance
Electrostatic discharge (ESD) IEC 61000-4-2	+/- 8 kV contact +/- 2 kV, +/- 4 kV, +/- 8 kV, +/- 15 kV air	+/- 8 kV contact +/- 2 kV, +/- 4 kV, +/- 8 kV, +/- 15 kV 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 transients/ bursts IEC 61000-4-4	±2kV 100kHz repetition frequency	±2kV 100kHz repetition frequency	Mains power quality should be that of a typical commercial or hospital environment.

Surge IEC 61000-4-5	Line to line: $\pm 0.5\text{kV}$, $\pm 1\text{kV}$	Line to line: $\pm 0.5\text{kV}$, $\pm 1\text{kV}$	Mains power quality should be that of a typical commercial or hospital environment.
Voltage dips, short interruptions and voltage variations on power supply lines IEC 61000-4-11	0% U_T ; 0.5 cycle at 0° , 45° , 90° , 135° , 180° , 225° , 270° , and 315° 0% U_T ; 1 cycle and 70% U_T ; 25/30 cycles single phase at 0° 0% U_T ; 250/300 cycles	0% U_T ; 0.5 cycle at 0° , 45° , 90° , 135° , 180° , 225° , 270° , and 315° 0% U_T ; 1 cycle and 70% U_T ; 25/30 cycles single phase at 0° 0% U_T ; 250/300 cycles	Mains power quality should be that of a typical commercial or hospital environment. If the user of devices require continued operation during power mains interruptions, it is recommended that devices be powered from an uninterruptible power supply or a battery
Power frequency magnetic	30 A/m 50Hz or 60Hz	30 A/m 50Hz or 60Hz	Power frequency magnetic field should be at

field IEC 61000-4-8			levels characteristic of a typical location in a typical commercial or hospital environment.
Note: U_T : rated voltage(s); E.g. 25/30 cycles means 25 cycles at 50Hz or 30 cycles at 60Hz			

Guidance and manufacturer's declaration – electromagnetic immunity

The **Ultra X** is intended for use in the electromagnetic environment specified below. The customer or the user of the **Ultra X** should assure that it is used in such an environment.

Proximity magnetic fields	IEC 61000-4-39 test level	Compliance level	Electromagnetic environment – guidance
Proximity magnetic fields	134.2kHz Pulse modulation 2.1kHz	65A/m	Power frequency magnetic field should be at levels
Proximity magnetic fields	13.56MHz Pulse modulation 50kHz	7.5A/m	characteristic of a typical location in a typical commercial or hospital environment.

Guidance and manufacturer's declaration – electromagnetic immunity			
The Ultra X is intended for use in the electromagnetic environment specified below. The customer or the user of the Ultra X should assure that it is used in such an environment.			
Immunity test	IEC 60601 test level	Compliance level	Electromagnetic environment – guidance
Conducted disturbances induced by RF fields IEC 61000-4-6	3 V 0.15 MHz – 80 MHz, 6 V in ISM bands and amateur radio bands between 0.15 MHz and 80 MHz, 80 % AM at 1 kHz	3 V	Portable and mobile RF communications equipment should be used no closer to any part of the Ultra X , including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended minimum separation distances See the RF wireless
Radiated RF EM fields IEC 61000-4-3	3 V/m, 80 MHz – 2,7 GHz, 80 % AM at 1 kHz	3V/m	
Proximity fields from	See the RF wireless	Complies	

RF wireless communication equipment IEC 61000-4-3	communication equipment table in "Recommended minimum separation distances"		communication equipment table in "Recommended minimum separation distances"
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Recommended minimum separation distances

Nowadays, many RF wireless equipments have being used in various healthcare locations where medical equipment and/or systems are used. When they are used in close proximity to medical equipment and/or systems, the medical equipment and/or systems' basic safety and essential performance may be affected. The **Ultra X** has been tested with the immunity test level in the below table and meet the related requirements of IEC 606061-1-2:2014+A1:2020. The customer and/or user should help keep a minimum distance between RF wireless communications equipments and the **Ultra X** as recommended below.

Test Frequency (MHz)	Band (MHz)	Service	Modulation	Maximum power (W)	Distance (m)	Immunity test level (V/m)
385	380-390	TETRA 400	Pulse modulation 18Hz	1.8	0.3	27
450	430-470	GMRS 460 FRS 460	FM \pm 5kHz deviation 1kHz sine	2	0.3	28
710	704-787	LTE Band 13, 17	Pulse modulation 217Hz	0.2	0.3	9
745						
780						
810	800-960	GSM	Pulse	2	0.3	28

11 EMC Tables

870		800/900, TETRA 800, iDEN 820, CDMA 850, LTE Band 5	modulation 18Hz			
930						
1720	1700-1990	GSM 1800; CDMA 1900; GSM 1900; DECT; LTE Band 1, 3,4, 25; UMTS	Pulse modulation 217Hz	2	0.3	28
1845						
1970						
2450	2400-2570	Bluetooth, WLAN, 802.11b/g/n, RFID 2450, LTE Band 7	Pulse modulation 217Hz	2	0.3	28
5240	5100-5800	WLAN 802.11 a/n	Pulse modulation 217Hz	0.2	0.3	9
5500						
5785						



- Use of accessories and cables other than those specified or provided by the manufacturer of Ultra X could result in increased electromagnetic emissions or decreased electromagnetic immunity of Ultra X and result in improper operation.

Cable information:

Cable Name	Cable Length (m)	Shielded or not	Remark
Adapter Cable	1.2	No	/

- Use of Ultra X adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, Ultra X and the other equipment should be observed to verify that they are operating normally.

- Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30 cm (12 inches) to any part of the Ultra X, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.”
- If the use location is near (e.g. less than 1.5 km from) AM, FM or TV broadcast antennas, before using this equipment, it should be observed to verify that it is operating normally to assure that the equipment remains safe with regard to electromagnetic disturbances throughout the expected service life.

12.Statement

Service Life

The service life of Main unit is 3 years. It is recommended that the equipment be checked and repaired at the dealer once a year.

Disposal

The package should be recycled. Metal parts of the device are disposed as scrap metal. Synthetic materials, electrical components, and printed circuit boards are disposed as electrical scrap. The lithium batteries are disposed as special refuse. Please deal with them according to the local environmental protection laws and regulation.

Rights

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