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WOODPECKER®

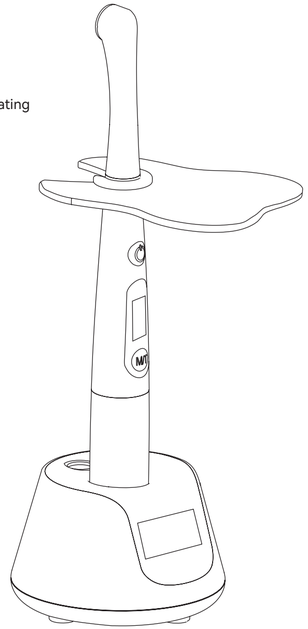
桂林市啄木鸟医疗器械有限公司

Guilin Woodpecker Medical Instrument Co., Ltd.

WOODPECKER

X-Star
CURING LIGHT
Instruction manual

Please read this manual before operating
ZMN-SM-1043 V1.2-20250703



Guilin Woodpecker Medical Instrument Co., Ltd.

Catalog

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Preface

Guilin Woodpecker Medical Instrument Co., Ltd. is a high-tech enterprise that integrates research and development, production, and sales of dental products. It has a complete quality assurance system and its main products include ultrasonic dental cleaning machines, light curing machines, root canal length measuring instruments, ultrasonic bone cutting machines, etc.

1 Introduction

1.1 Features

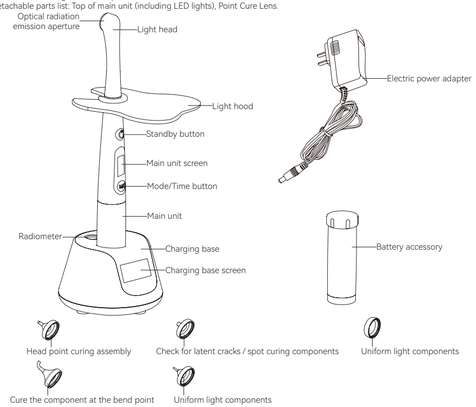
1) Eight working modes: Normal,High,Turbo,Ortho,Soft,Pulse,Check, and Diagnostic.
2) Collimated beam output effectively reduces optical loss.
3) Constant optical power output, without affecting the curing effect due to a decrease in battery power.
4) Charging base with built-in light meter.
5) The top of the main unit conducts heat faster, effectively reducing heat concentration at the light source.

1.2 Product principle and scope of application

1.2.1 Use light-emitting diode (LED) lights as the light source to emit a certain wavelength of light that is effective for dental restoration materials. The light is collected and exported through optical components, allowing the dental restoration materials to quickly cure under the action of light irradiation energy.
1.2.2 This product is suitable for dentistry and has the function of accelerating the solidification of dental repair materials.
1.2.3 Inspection mode uses the fluorescence reaction generated when purple light is irradiated on teeth to detect dental caries or plaque.
1.2.4 Diagnostic mode uses white light to illuminate teeth, which can produce obvious shadows to detect hidden cracks in teeth and can also be used for illumination.

2 Product Performance Structure and Composition

This product consists of Light hood, Top of main unit (including LED lights), Main unit, Charging base, power adapter, Point Cure Lens(optional), battery accessory, and disposable isolation sleeve.
Attachment List: Light hood, Disposable isolation sleeve
Detachable parts list: Top of main unit (including LED lights), Point Cure Lens.



3 Basic Technical Parameters

3.1 Main unit size: 23mm × 23mm × 219mm

3.2 Main unit weight: 120g

3.3 Machine Configuration:

Main unit*1, Top of main unit*1, Light hood*1, Point cure lens*5 (optional), Power adapter*1,Charging base*1, Battery accessory*1, Disposable isolation sleeve * 100, User manual * 1, Certificate of conformity * 1

3.4 Power Supply

3.4.1 Classification by power supply source
Powered by rechargeable batteries.
3.4.2 Rechargeable lithium batteries

Battery model: 18500 3.7V, Battery capacity: 2000mAh
Battery has over-voltage, over current and short circuit protection.
3.4.3 Power adapter (charger)
Input: 100-240V~50Hz/60Hz 0.4A-0.2A
Output: 5V ⎓ 1A

3.5 Performance LED lights

3.5.1 Wavelength: 380nm ~ 515nm
3.5.2 Typical wavelength peaks:460 ± 15nm and 400 ± 15nm
3.5.3 Class: Risk Group 1 IEC 60601-2-57:2011
3.5.4 Launch Limit (AEL): 3.9×10^{-3}J
3.5.5 Check method: When operate machine properly, LED luminous means LED is in good condition.
3.5.6 Clinical commonly used dental resin materials are compatible with the wavelength of this curing light, such as 3M and Dentsply resins.
3.5.7 The irradiance requirement of 380nm~515nm: no less than 250mW/cm^2.
3.5.8 The diameter of the light emitting end face of the light guiding element is 12mm, and the optical effective area is 113mm^2
3.5.9 Allowable range of irradiance deviation: ± 10%
3.5.10 Maximum output of optical radiation: 3000mW/cm^2

3.6 Operating environment:

3.6.1 The ambient temperature is:+ 5℃ ~+40℃
3.6.2 Relative humidity: 30% ~ 75%
3.6.3 Atmospheric pressure: 70kPa ~ 106kPa

3.7 Equipment Safety Classification

3.7.1 Classified by type of electric shock prevention: Connecting to the power grid during charging belongs to Class II ME equipment, and not connecting to the power grid during operation belongs to internal power ME equipment.
3.7.2 Classification by degree of electric shock prevention: Type B application part.
3.7.3 Classified by the degree of protection against liquid ingress: ordinary equipment (IPX0), not waterproof.
3.7.4 Classification by operating mode: Non continuous operation (continuous operation for 60 seconds, stop for 1 second)
3.7.5 Classification of safety level when using flammable anesthetic gases mixed with air or flammable anesthetic gases mixed with oxygen or nitrous oxide: non AP, APG equipment.

4 Installation and disassembly methods

4.1 Aim the mounting holes which on the upper of main unit, and make the long side of the top of main unit inserted to it (it must be rotated to the bottom, don't inclined inserted). The top of main unit can rotate 360 degrees.

4.2 Remove the disposable isolation sleeve and place it on the machine.

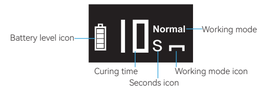
⚠ Attention: This disposable isolation sleeve cannot be reused. After use, according to local laws and regulations, the product should be recycled or disposed of in an appropriate manner.

4.3 Insert the notch of the Light hood into the top of the main unit, and then clamp the Light hood downwards onto the main unit.

4.4 When charging is required, remove the Charging base and power adapter, connect the adapter to the~100V-240V power supply, insert the output plug of the adapter into the charging socket labeled 5.0V 1A on the Charging base, and then insert the Main unit into the Charging base for charging. When charging is not required, please unplug the power adapter.

5 Operation Methods

5.1 Main unit screen display



5.2 Charging base screen display



5.3 Strobe Mode Switching

Long press the "M/T" button and short press the switch button to turn off or enter the mode selection interface. After entering the mode selection interface, short press the "M/T" button to cycle between the strobe mode and the normal mode.

5.4 Diagnostic mode

In any working mode, long press the switch button to enter the Diagnostic mode.

5.5 Working Mode Settings

Short press "M/T" button:

Curing Light Warranty Card

Name of Customer		(Ⅰ) For Customer
Address Details		
Postal Code		
Tel		
Model		
Product No.		
Purchase Date		
Contact Person		
Date	Maintenance Record	Repairer

Guilin Woodpecker Medical Instrument Co.,Ltd.
Information Industrial Park, Guilin National High-Tech Zone, Guilin, Guangxi, 541004 P. R. China
Sales Dept.: +86-0773-5873196/2350599
After-sales Service Dept.: +86-0773-5827898
E-mail: woodpecker4@glwoodpecker.com
Website: http://www.glwoodpecker.com

Distributor:

Seal

Curing Light Warranty Card

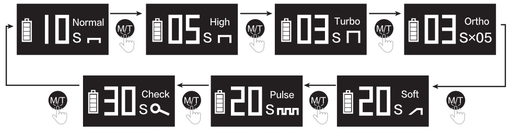
Name of Customer		(Ⅱ) For Distributor
Address Details		
Postal Code		
Tel		
Model		
Product No.		
Purchase Date		
Contact Person		
Date	Maintenance Record	Repairer

Guilin Woodpecker Medical Instrument Co.,Ltd.
Information Industrial Park, Guilin National High-Tech Zone, Guilin, Guangxi, 541004 P. R. China
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Website: http://www.glwoodpecker.com

Distributor:

Seal

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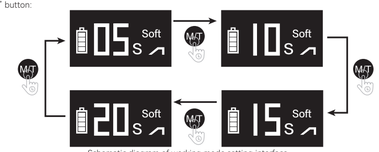


Schematic diagram of working mode setting interface

Short press the "M/T" button to cycle through the working mode. It can be set to seven working modes: standard, strong light, super strong, orthodontic, progressive, pulse, and examination. Due to the different timing settings for different modes, the timing will automatically follow the switch when switching modes.

5.6 Timing Time Setting

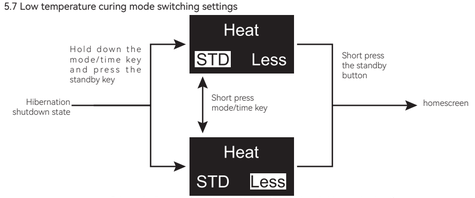
Long press "M/T" button:



Schematic diagram of working mode setting interface

Long press the "M/T" button to cycle change the curing time. The timing varies for different working modes.

5.7 Low temperature curing mode switching settings



Schematic diagram of low-temperature curing mode switching setting interface

In the sleep mode shutdown state, hold down the Mode/Time button and short press the Standby button to enter the low-temperature curing mode setting interface. After entering the setting interface, press the Mode/Time button briefly to switch the selection. If STD is selected, it means the selected working mode is the conventional mode. If Less is selected, it means the selected working mode is the low-temperature curing mode. After selecting, short press the Standby button to confirm and enter the standby interface.

5.8 STD and Less Comparison Guidelines

Mode	STD	Less
Normal	Convention	Convention
High	Convention	Low temperature curing
Turbo	Convention	Low temperature curing
Ortho	Convention	Low temperature curing
Soft	Convention	Convention
Pulse	Low temperature curing	Low temperature curing
Check	Convention	Convention
Diagnostic	Convention	Convention

5.9 Quick Operation Guide

Mode	Timed time (s)	Light intensity (mW/cm 2)
Normal	5, 10, 15, 20	1000-1200
High	3, 5	1800-2000
Turbo	1, 3	2700-3000
Ortho	3*5, 3*10	2700-3000
Soft	5, 10, 15, 20	1000-1200

Pulse	5, 10, 15, 20	1000-1200
Check	30, 60	/
Diagnostic	60	/
Working mode setting	Short press the "M/T" button to cycle through the working modes.	
Curing time setting	Long press the "M/T" button to cycle through the curing times.	
Diagnostic mode on and off	In standby mode, long press the Standby button to activate the Diagnostic mode. After activation, short press the Standby button to cycle the brightness of the white light between strong and weak. Long press the Standby button again to exit the Diagnostic mode. After the white light is illuminated for 60 seconds, it will automatically turn off and exit the Diagnostic mode	
Active shutdown function	In standby mode, hold down the Mode/Time button and short press the Standby button to actively enter sleep mode and shut down	

5.10 Suggested curing time

Suggested curing time for optimal results using X-Star curing lamp.
Due to the reactivity, color, distance from the light emitting end face to the composite resin material, and the depth of delamination of the composite resin (if exceeding 2mm), the curing time needs to be adjusted according to actual applications.

Mode	Normal, Soft, pulse	High	Turbo	Ortho
Per 2mm layer	1 × 10 seconds	2 × 3 seconds	1 × 3 seconds	/
Final cure	2 × 10 seconds	2 × 3 seconds	2 × 3 seconds	/
Ortho Metal & Ce-ramic Brackets	/	2 × 5 seconds	2 × 3 seconds	2 × 3 seconds

5.11 Use of solidified components

Magnetic Point Cure Lens, adsorbed on the top of the main unit, can integrate and change the emitted light from the top of the main unit, expanding the application scenarios of light curing lamps.
5.11.1 Hidden Crack Inspection/Point Cure Lens
It can be used in conjunction with the Top of Main Unit for some scenarios that require local cure, such as porcelain veneers. It can also be used in Diagnostic mode with the Top of Main Unit for tooth cracking examination.
5.11.2 Uniform Lens
In the purple light examination mode or Diagnostic mode, it can be combined with the Top of main unit for dental caries examination or lighting operations.
5.11.3 Thin Point Cure Lens
Can be used in conjunction with the Top of main unit for curing in narrow spaces, such as fiber posts or fluid resin curing in dental cavities.
5.11.4 Ball-end point cure lens
Can be used in conjunction with the Top of Main Unit for adjacent surface solidification of teeth to improve solidification efficiency.
5.11.5 Curved point cure lens
Can be used in conjunction with the Top of main unit for curing difficult to irradiate areas, such as the distal and middle surfaces, posterior teeth, etc.

5.12 Dental caries detection

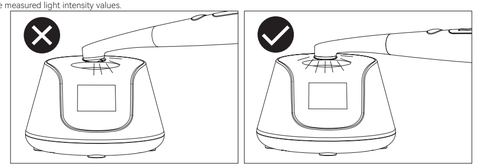
Choose the purple light inspection mode, which produces orange red fluorescence when irradiating dental caries or plaque with purple light, to detect surface caries or plaque.

⚠ Warning: Check mode is prohibited for curing resin materials.

5.13 Measuring Light Intensity

The charging base has a built-in light meter that can quickly measure light intensity when connected to a power source.
Select the corresponding mode and place the top of the main unit light source horizontally centered on the Charging baseRadiometer for measurement.

⚠ Attention: Placing the Top of main unit light source at an angle for measuring light intensity may result in significant deviations in the measured light intensity values.



The effective measurement light source diameter of the built-in light meter is 12mm. If the measured light source diameter is not 12mm (such as the common 10mm or 8mm), it will result in significant differences in the measured light intensity values. At the same time, there are differences in the standards for measuring light intensity values among different manufacturers, and it is recommended to only use them for measuring the matching light curing machine.If the measurement is not done with the matching Curing Light, there may be significant differences in the measured light intensity values.

5.14 Overheat protection function description: Maximum continuous working time: 400 seconds (for example, the 20 seconds mode can be used for 20 consecutive times). If the remaining available time is exhausted, you need to wait 60 seconds to cool down and resume use. After 60 seconds of sleep or interval without use, the available time is reset to 400 seconds.

5.15 Insert the disposable isolation sleeve into the head of the Main unit, and clip the Light hook into and hold

the Main unit. Then align the light source with the position that needs to be cured (the distance between the light emitting surface and the curing surface is recommended to be less than 1cm), press the Standby button, and the Main unit will make a "di" sound. The Main unit will emit blue purple light and work in the selected working mode. The Main unit will start displaying the countdown from the set timing time and end working when the timer reaches 0. The Main unit will display the set timing time.

5.16 Before the countdown ends after starting work, short press the Standby button to end work at any time and turn off the light output.

5.17 Low Voltage Indication: The Main unit has a low battery detection function internally. When a low battery is detected, the battery level symbol on the Main unit screen will display 0 cells and flash. Please charge it in a timely manner.

5.18 When charging, connect the charging base power supply and insert the main unit into the charging base for wireless induction charging. At this time, the battery icon on the charging base screen will scroll to indicate that it is charging. When the battery icon on the Charging base screen stops scrolling and displays as fully charged, it indicates that the Main unit is fully charged.

5.19 After use, if the transparent cover is stained with resin, please wipe it clean with a cotton cloth to avoid affecting the light intensity.

5.20 The device will automatically shut down after 2 minutes of standby. Please press any button to turn it on.

5.21 The effective light intensity of this machine is many times higher than that of halogen light curing machines, and the curing depth of light cured composite resins is not less than 4mm within 10 seconds.

5.22 The point curing component can be sterilized and disinfected at a temperature of 134 ℃ and a pressure of 0.22MPa.

5.23 Top of main unit prohibits high temperature and high pressure sterilization, as high temperature and high pressure can damage the Top of main unit.

6 Safety precautions

6.1 Please charge the machine for at least 4 hours before using it for the first time.When charging. Please make sure that the power adapter is connected to a place where it can be easily disconnected from the mains power supply. If there is any other situation, please promptly unplug the power plug.

6.2 When using, the disposable isolation sleeve should be inserted into the head of the Main unit to avoid contact between the Main unit or other components and the patient's skin or oral mucosa.

6.3 After use, the disposable isolation sleeve should be removed from the head of the Main unit and disposed of according to relevant regulations. The disposable isolation sleeve should not be reused to prevent cross infection.

6.4 In clinical use, the light source should be directly irradiated onto the cured resin material to prevent improper irradiation position from affecting the curing effect. Do not directly irradiate oral soft tissues at close range to avoid thermal damage to oral soft tissues. The curing depth of light cured composite resin should not be less than 4mm within 10 seconds. It is not recommended to repeat long-term irradiation to avoid light hazards such as thermal radiation.

6.5 Please use the original power adapter, as other power adapters may cause damage to the lithium battery and control circuit.

6.6 It is strictly prohibited to insert metal or other conductors into the charging socket of the charging base to avoid internal circuit short circuits and burns.

6.7 Please charge the battery in a cool and ventilated room. When charging, please make sure to place the Main unit perpendicular to the Charging base, otherwise it may cause low wireless charging efficiency or even inability to charge.

6.8 It is strictly prohibited to open the battery without authorization, otherwise it may cause short circuit or electrolyte leakage.

6.9 It is strictly prohibited to squeeze, vibrate or shake the battery, shortcircuit the battery, or place the battery together with metal objects.

6.10 The instrument has electromagnetic interference. Do not use the instrument around electronic surgery, and be cautious when using it in environments with strong electromagnetic interference.

6.11 It is strictly prohibited to use the machine or perform any other operations while charging.

6.12 To avoid electromagnetic interference, the equipment must be placed in a medical facility that meets EMC environmental requirements.

6.13 The manufacturer may provide circuit diagrams, component lists, drawing annotations, calibration details, or other information that is helpful for maintenance personnel to repair equipment components that can be repaired by the manufacturer's designated maintenance personnel as required.

6.14 Repeated long-term irradiation with elevated temperature may cause physiological effects such as thermal

stimulation and damage to oral soft tissues in patients. In this case, the irradiation operation should be stopped immediately, and the recommended method of treatment should be followed.

6.15 The physiological effects of medication and other conditions on patients with different levels of development or treatment processes may vary, and it is recommended to use a light curing machine according to the recommended method by trained and qualified dentists. This product is suitable for dental patients and must be used in hospitals or professional medical facilities.

6.16 Temperature Warning: When the equipment is continuously exposed to light for a long time, the maximum temperature of the top of main unit's light end face can reach 83℃ . The equipment should be used intermittently to avoid prolonged exposure, or stopped when the temperature rises significantly.

6.17 When equipment interferes with each other during special diagnostic or treatment, it may result in incomplete solidification.

6.18 The device should be placed in a location where it is easy to remove the power plug (or charging adapter) during use (or charging).

6.19 If there is a situation where the soft components of the burned patient are irradiated during use, it is recommended to switch the light output mode of the device from conventional constant light emission to strobe light emission. strobe light emission can effectively reduce the temperature of the patient's irradiated area and also meet the requirements of resin curing. The switching method is: in the sleep off state, hold down the "M/T" key and press the Standby button to turn on the device. This will enter the selection interface, where the first line displays "Heat" on a black background with white text, and the second line displays "STD" and "Less". If "STD" is displayed on a black background with white text and "Less" is displayed on a white background with black text, it indicates that the current mode is flashing light. If "STD" is displayed on a white background with black text and "Less" is displayed on a black background with white text, it indicates that the current mode is constant light emission. At this time, short press the "M/T" key to switch between the two modes. After selecting, short press the Standby button to confirm and enter the normal standby interface.

6.20 Do not attach acid etching agent, adhesive and other acidic or alkaline materials to the aluminum alloy machine or accessories to avoid corrosion of the machine surface. If the above materials are attached, they should be cleaned immediately.

⚠ 6.22 WARNING! Long-term exposure of the human eye to blue light will lead to biological effects of light radiation, which can cause damage to the eyes and lead to photogenic retinitis, etc.; the operator must standardize and correctly install and use the manufacturer's original shields and wear protective goggles (filter lenses) to effectively prevent damage to the eyes caused by blue light and ultraviolet light. The emission window is strictly prohibited from irradiating the eyes.

6.23 CAUTION – Failure to control, adjust, or perform all steps of the procedure as prescribed for use may result in harmful radiation exposure.

6.24 If treatment is completed and the equipment is no longer in use, be sure to place the equipment in such a way as to prevent harm from unintended use.

7 Product Contraindications

7.1 Heart disease patients, pregnant women, and young children should use with caution.

7.2 LED light allergy patients should use with caution.

8 Daily maintenance

8.1 Warning: Do not modify this device without authorization from the manufacturer.

8.2 This product does not include self repaired spare parts. Machine repairs should be carried out by designated professionals or authorized repair shops, and unauthorized personnel are not allowed to perform on-site repairs.

8.3 Users can replace lithium batteries on-site Light hood. Point curing components, Top of main units, and disposable isolation sleeves must use original factory accessories. Please contact your local distributor or our company for purchase. Do not use accessories from other brands to avoid damage to the UV curing machine or other hazards.

8.4 If a lithium battery needs to be replaced, first rotate the battery sleeve on the Main unit counterclockwise, then remove the lithium battery, insert the lithium battery into the battery sleeve and push it into place, and finally tighten the battery sleeve with the lithium battery inserted clockwise.

8.5 If you want to clean or disinfect, please wipe the surface with clean water or disinfectant, do not soak it.

8.6 After each use, check for any resin residue on the surface of the Top of Main Unit to avoid affecting its lifespan or curing effect.

8.7 If the main unit is not used for a long time, please make sure to charge the lithium battery of the main unit every six months to prevent damage to the lithium battery due to prolonged storage.

9 Cleaning, disinfection, and sterilization

9.1 Cleaning of Point Cure Lens

The Point Cure Lens can be manually cleaned with clean water or alternatively cleaned in an ultrasonic cleaner.

9.2 Point Cure Lens sterilization

The point curing component should be sterilized at high temperature and pressure of 134℃ and 0.22MPa .lasts longer than four minutes. Repeated disinfection and sterilization may lead to a decrease in the performance of the point-cured component. It is recommended to do 300 times after repeated disinfection and sterilization, it is replaced to ensure the normal use of the whole machine.

9.3 Top of main unit cleaning/disinfection

If you want to clean or disinfect the top of the main unit, please use neutral disinfectant such as 75% medical alcohol to wipe the surface for cleaning and disinfection effect, and dry it with a clean soft cloth to keep its surface dry. Do not rinse or soak it; Do not use volatile and soluble solvents for cleaning, as this can cause the markings on the machine to fade.
Before each use of the machine, disposable isolation sleeves should be inserted into the Top of Main Unit and Main Unit to avoid contact with the patient's skin or oral mucosa. After use, the disposable isolation sleeve should be removed from the head of the Main unit and disposed of according to relevant regulations. The disposable isolation sleeve is prohibited from being reused to prevent cross infection.

10 Troubleshooting

Fault conditions	Possible reasons	Processing method
No indication, no action	1. The battery inside the Curing Light is dead 2. Main unit battery protection: The battery is damaged 3. Battery damage	1. Connect the power adapter for charging 2. Place the main unit on the charging base for charging activation 3. Contact local distributors or our company
Insufficient light intensity	Resin residue on the top of the main unit lens end face	1. Remove residual resin 2. Replace the Top of main unit
Not charging after connecting the power adapter	1. The power supply is not plugged in properly 2. The power adapter is damaged 3. The specifications of the power adapter do not match, causing damage to the charging base	1. Pull out and reconnect 2. Contact local distributors or our company 3. Contact local distributors or our company
The usage time of the battery becomes shorter after charging	The battery capacity decreases	Contact local distributors or our company
The battery icon space is flashing	Low battery level	Charge the machine
Main unit display: LED Error	LED light abnormality	Contact local distributors or our company
Contact local distributors or our company	Continuous use for too long, thermal protection circuit activated	Stand still and stop using for 60 seconds. After 60 seconds, the machine can resume normal use

If the fault still cannot be resolved, please contact your local dealer or our company.

11 Storage and transportation

11.1 This equipment should be handled with care, kept away from the earthquake source, and installed or stored in a cool, dry, and well ventilated place.

11.2 Do not mix with toxic, corrosive, flammable, or explosive materials during storage.

11.3 The product should be stored in an environment with a relative humidity of 10% to 93%, an atmospheric pressure of 70kPa to 106kPa, and a temperature of -20 ℃ to+55 ℃ .

11.4 During transportation, excessive impact and vibration should be prevented and handled with care.

11.5 During transportation, it should not be mixed with dangerous goods.

11.6 During transportation, avoid exposure to sunlight or rain and snow.

12 After sales service

From the date of sale, if this device cannot function properly due to quality issues, our company is responsible for repairing it with a warranty card.
The warranty period and scope refer to the product warranty card.

13 Environmental Protection

Component Name	hazardous substance					
	lead (Pb)	Mercury (Hg)	cadmium (Cd)	Hexavalent chromium (Cr6+)	Polybromin ated biphenyls (PBB)	PBDE (PBDE)
Main unit	○	○	○	○	○	○
Top of main unit	○	○	○	○	○	○
Point Cure Lens	○	○	○	○	○	○
Charging base	○	○	○	○	○	○
The power adapter	○	○	○	○	○	○
Light hood	○	○	○	○	○	○
Mechanical components, including screws, nuts, washers, etc	○	○	○	○	○	○

○: Indicates that the content of the toxic and harmful substance in all homogeneous materials of the component is below the limit requirements specified in SJ/T-11363-2006 "Limit Requirements for Toxic and Harmful Substances in Electronic Information Products".
×: indicates that the content of the toxic and harmful substance in at least one homogeneous material of the component exceeds the limit requirements specified in SJ/T11363-2006.
(This product complies with the EU RoHS environmental requirements; currently, there is no mature technology internationally that can replace or reduce the lead content in electronic ceramics, optical glass, steel, and copper alloys.)
According to the Management Measures for the Restriction of Hazardous Substances in Electrical and Electronic Products, the Regulations on the Management of Recycling and Disposal of Waste Electrical and Electronic Products, and relevant standards, please comply with the safety and usage precautions of the product, and recycle or dispose of the product in an appropriate manner according to local laws and regulations after use.

14 symbol explanation

	Pay attention to causing physiological effects		Please do not dispose of this product into regular urban waste or urban systems
	Follow the operating instructions		Fragile items
	B-type application part	IPX0	Ordinary equipment
	Date of manufacture		Manufacturer
	Class II equipment		Only for indoor use
	Warning label - danger symbol		Adapter DC output with positive inside and negative outside
	Direct current		alternating current
	Afraid of rain		Recyclable
	Standby button	SN	Serial number Mode/time
CE	CE mark product	M/T	Mode/time button, short press to adjust mode, long press to adjust timing time
EC REP	Authorised Representative in the EUROPEAN COMMUNITY	106kPa / 70kPa	Storage conditions, with an atmospheric range of 70kPa-106kPa
+55℃ / -20℃	Storage conditions, temperature range is -20 ℃ ~+55 ℃	93% / 10%	Storage conditions, humidity range of 10% to 93%
UDI	Unique Device Identifier	MD	Medical device
LOT	Lot Number	+ −	Battery installation direction/positive and negative pole identification (concentric circle with positive pole inside and negative pole outside)
	Non-reusable	134℃	Sterilizable up to thetemperature specified

15 Electromagnetic compatibility

⚠ Be careful:

- The X-Star Curing Ligh complies with the electromagnetic compatibility requirements of YY9706.102-2021 standard.
- Users should install and use according to the electromagnetic compatibility information provided in the random file.
- Portable and mobile RF communication devices may affect the performance of the X-Star Curing Ligh, so avoid strong electromagnetic interference, such as being close to mobile phones, microwave ovens, etc;
- Please refer to the attachment for the guidelines and manufacturer's statement.

⚠ Warning:

- The X-Star Curing Ligh should not be used in close proximity or stacked with other equipment. If it must be used in close proximity or stacked, it should be observed and verified that it can operate normally under its configuration.
- Using accessories, transducers, and cables that are not specified may result in an increase in equipment or system emissions or a decrease in immunity, except for transducers and cables sold as spare parts for internal components by the manufacturer of the equipment or system.
- Using accessories, transducers, or cables outside of regulations with equipment and systems may result in an increase in equipment or system emissions or a decrease in immunity.

15.1 Basic Product Performance

Basic Performance Name	Describe	Response time to achieve normal functionality
The product has no basic performance	/	/

15.2 Cable Installation Requirements

CABLE NAME	Cable Type	Cable length (m)
Power adapter power cord	Unshielded parallel wire	1.2m

15.3 Electromagnetic Compatibility Key Components

The key components for electromagnetic compatibility of this product are power inductors and capacitors. The use or replacement of accessories, power inductors, capacitors, etc. that are not designed with matching components will significantly reduce the electromagnetic compatibility emission and anti-interference performance. Please do not replace machine components without authorization.

15.4 Guidelines and Manufacturer's Statement - Electromagnetic Emissions

Guidelines and Manufacturer's Statement - Electromagnetic Emissions		
The device are intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that it is used in such an environment.		
Emissions test	Compliance	Electromagnetic environment - guidance
RF transmission CISPR 11	1 group	The models X-Star 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 transmission CISPR 11	Class B	The models X-Star are suitable for used in domestic establishment and in establishment directly connected to a low voltage power supply network which supplies buildings used for domestic purposes.
Harmonic emission IEC 61000-3-2	Class A	
Voltage fluctuation/flicker emission IEC 61000-3-3	Complies	

Guidelines and Manufacturer's Declaration - Electromagnetic Immunity			
The device are intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that It is used in such an environment.			
Immunity test	IEC60601 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 %.
Electric fast transient/ burst IEC 61000-4-4	±2kV for power supply lines ±1 kV for Input/ output lines	±2kV for power supply lines ±1kV for interconnecting cable	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%U_T (>95% dip in U_T) for 0.5 cycle 70%U_T (30% dip in U_T) for 25/30 cycles <5% U_T (>95 % dip in U_T) for 5 sec	<5%U_T (>95% dip in U_T) for 0.5 cycle <5%U_T (>95% dip in U_T) for 1 cycle 70%U_T (30% dip in U_T) for 25/30 cycles <5%U_T (>95 % dip in U_T) for 5 sec	Mains power quality should be that of a typical commercial or hospital environment. If the user of the device require 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	30A/m	30A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.

Note: U_T is the a.c. mains voltage prior to application of the test level.

Guidance & Declaration - Electromagnetic immunity			
The device are intended for use in the electromagnetic environment specified below. The customer or the user of the device should assure that it is used in such an environment.			
Immunity test	IEC 60601 Test Level	Compliance level	Electromagnetic Environment - Guidance

Conducted RF IEC 61000-4-6 Radiated RF IEC 61000- 4-3	3 Vrms 150 kHz to 80 MHz 6 Vrms in ISM Bands 3 V/m 80 MHz to 2.7 GHz 385MHz- 5785MHz Test specifications for ENCLOSURE PORT IMMUNI TY to RF wireless Communication equipment (Refer to table 9 of IEC 60601-1- 2:2014)	3 Vrms 150 kHz to 80 MHz 6 Vrms in ISM Bands 3 V/m 80 MHz to 2.7 GHz 385MHz- 5785MHz Test specifications for ENCLOSURE PORT IMMUNI TY to RF wireless Communication equipment (Refer to table 9 of IEC 60601-1- 2:2014)	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 $\sqrt{P}$ 80MHz~800MHz d=2.3 $\sqrt{P}$ 800MHz~2.5GHz 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, a should be less than the com pliance level in each frequency rangeb Interference may occur In the vicinity of equipment marked with the following symbol:
NOTE 1 At 80 MHz end 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 struc- tures, 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 are used exceeds the applicable RF compliance level above, the model should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the device. b Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3V/m.			

Recommended isolation distance between portable and mobile RF communication equipment and X-Star light curing machine

The device are intended for use in electromagnetic environment in which radiated RF disturbances is controlled. The customer or the user of the device can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communi- cations equipment (transmitters) and the device are recommended below, according to the maximum output power of the communications equipment.

Rated maximum output power of transmitter W	Isolation distance for different frequencies of the corresponding transmitter/m		
	150kHz~80MHz d=1.2 $\sqrt{P}$	80MHz~800MHz d=1.2 $\sqrt{P}$	800MHz~2.5GHz 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) accordable to the transmitter manufacturer.

NOTE 1 At 80 MHz and 800 MHz. the separation distance for the higher fre quency 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.

The X-Star curing light has been successfully tested in accordance vwith IEC 60601-1-2:2020. However, this does not in any way guarantee immunity from electromagnetic interference. The X-Star curing light should be avoided in environments with high electromagnetic interference..

16 Special Instructions

All rights of modifying the product are reserved to the manufacturerwithout further notice. The pictures are only for reference. The final interpretation rights belong to GUILIN WOODPECKER MEDICAL INSTRUMENT CO., LTD.
The industrial design, inner structure, etc, have claimed for several parents by WOODPECKER, any copy or fake product must take legal responsibilities.

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for more information

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Harm of fake products

WOODPECKER and DTE. are two brands of Guilin woodpecker medical instrument company. Recently, growing fake ultrasonic scaler handpieces, tips curing lights are produced and sold on the market, which do harm to users' interest.On this issue, We Woodpecker will crack down fake products and provide safe and secure medical instrument products.

1. Harm of fake ultrasonic scaler handpieces.

1.1 Fake handpieces with poor-designed inner structure can lead to frequent power leakage, which may cause medical accidents.
1.2 Material used on fake handpieces don' t pass biocompatible test, which can easily lead to irritability and poisoning.
1.3 Fake handpieces have quality problems of overheating, non-vibration and cracking, which cause ultrasonic scalers out of order.
1.4 Fake handpieces can' t be compatible with ultrasonic scalers, thus leading to circuit burn out.

2. Harm of fake scaler tips.

2.1 Fake tips are low in toughness, poor in resistance and easy to crack, thus easily cause medical accident.
2.2 Fake tips' screw threads are roughly processed, which can cause handpiece' s screw loosing and cracking.
2.3 Material used on fake tips is inferior and easily rusting, which can cause infection of patient.
2.4 Fake tips have used problem of poor water-spraying, bad screw-thread fit and water leaking, which leads ultrasonic scalers work wrongly.

3. Harm of fake curing light.

3.1 Fake curing light' s batteries can cause self-ignite, even explosion with poor-quality material and no complete charging management.
3.2 Light intensity of fake curing light is not constant, when battery level goes down under 60%, it would lead to incomplete solidification of resin, causing secondary dental caries.



Warranty Instruction

Ⅰ Period validity:
Two years on the device, one year on the battery, excluding the light guide and light hood.

Ⅱ Range of warranty:
Within the warranty period of validity, we are responsible for any troubles caused by quality problems or products technique and structure.

Ⅲ The following are beyond our warranty:
1. The damage caused by disobeying the operation instruction or lack of the needed condition.
2. The damage caused by unsuitable operation or disassembly without authorization.
3. The damage caused by unadvisable transportation or preservation.
4. There isn't the seal of distributor or the warranty card isn't filled in completed.
5. The warranty is not including optical fiber and light hood.

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