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WOODPECKER

LED.F CURING LIGHT INSTRUCTION MANUAL

Industrial design patent No.: CN 200930321058.6

Please read this manual before operating



FDA CE

GUILIN WOODPECKER MEDICAL INSTRUMENT CO., LTD.

www.glwoodpecker.com

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1. Introduction

Guilin Woodpecker Medical Instrument Co., Ltd. is a high-tech enterprise in researching, developing, and producing dental equipment, and has a perfect quality assurance system, main products including ultrasonic scaler, curing light, micro motor, apex locator and ultrasurgery etc.

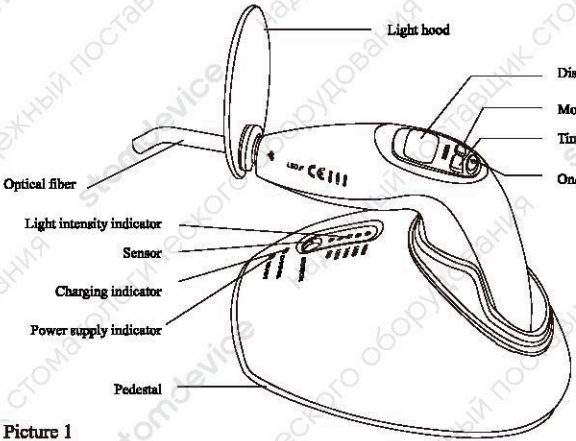
2. Principle and Application

1.1 The curing light LED.F utilizes the principle of the light radiation to make the resin which is high sensitivity with the ray radiation solidified rapidly.
1.2 With the function of accelerating the renovation of the teeth and solidifying the whiten teeth materials.

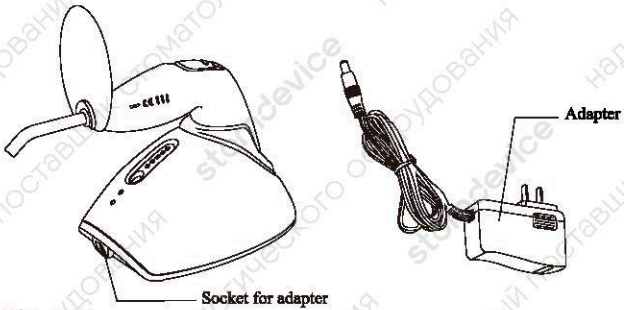
3. Product Performance Structure and Components

The curing light (Dentistry) mainly composes with main unit and accessories (high-power LED, optical fiber, light hood, Li-ion Battery, adapter and pedestal).

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Picture 1



Picture 2

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4. Basic Technical Specifications

4.1 Power supply:

4.1.1 Rechargable Li-ion Battery:

Battery nominal voltage and capacity: 3.7V 2000mAh

Battery Model: ICR18650

Battery has protection against Over-voltage, over-current and short circuit

4.1.2 Adapter:

Input: AC100V~240V 50Hz/60Hz

Output: DC5V/1A

4.2 Applied part: Optical fiber

4.3 Light source:

High-power: LED blue light

Wave length: 420nm-480nm

Light intensity: 1600mW/cm^2~1800mW/cm^2

4.4 Working condition:

Environment temperature: +5℃ to +40℃

Relative humidity: ≤80%

Atmosphere pressure: 70kPa to106kPa

4.5 Dimension: 195mm×40mm×150mm

4.6 Net weight: 210g

4.7 Consume power: ≤8W

4.8 Protection type against electric shock : Class II

4.9 Degree of Electric shock protection: Type B

4.10 Degree of protection against harmful ingress of water: Ordinary equipment (IPX0)

4.11 Degree of safety application in the presence of a Flammable Anaesthetic Mixture with air or Oxygen or Nitrous Oxide: not suitable under this condition.

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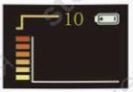
5. Installation and Demounting

5.1 Take off the red cap from the optical fiber, and then insert the metal part into the front of the curing light. (Make sure to screw the fiber to the end, be sure not sloping insert)
5.2 Install the light hood on the bottom of the optical fiber.
5.3 Screw the fiber reversed when demounting.
5.4 Battery replacement method: open the battery cover of the main unit, take the battery out, then disconnect the plug slightly. Connect the plug of the new battery correctly, put the new battery in, and then fix the battery cover.

6. Operation

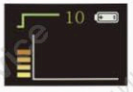
6.1 You can choose one of the following operating modes by pressing the MODE button on the curing light, the relative icon is displayed on the screen.

TURBO Mode:



Consistently high light intensity for the polymerization of restorative and cementation materials for direct and indirect restorations.The select of time could be 3,5 and 10 seconds.Its output light intensity is about 1600 mW/cm^2-1800 mW/cm^2.

NORMAL Mode:



Consistently high light intensity for the polymerization of restorative and cementation materials for direct and indirect restorations.The select of time could be 5,10 and 20 seconds.Its output light intensity is about 1000 mW/cm^2-1200 mW/cm^2.

LOW Mode:



Reduced light intensity with reduced heat development for the polymerization of adhesives, liners, and

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restorative materials in areas near the pulp when restoring Class V cavities.Its output light intensity is about 400 mW/cm^2-500 mW/cm^2.The select of time could be 10 seconds, 20 seconds, 1 minute, 3 minutes, 5 minutes.

6.2 Press the TIME button to set the solidifying time of present mode, the time can be displayed on the screen.

6.3 The curing light keep the records of last-set mode and solidifying time automatically, it will enter into the same mode automatically during next operation.

6.4 When operating, please focus on the point needs solidification, press the on / off button, and the main unit will produce "Bi"sound, the curing light radiates blue light and starts working according to the set modes. Meanwhile, it starts counting down and will produce tone at every 10s, it stops working when counting down to "0".

6.5 During operation, the curing light can be stopped by pressing the power button at any time.

6.6 After finishing the operation, please clean the fiber with calico in order not to affect the light intensity.

6.7 The curing light will turn off automatically after 2 minutes' break. Press on/off button to restart.

6.8 When low power is detected, the indicator in the screen will wink, please charge in time.

6.9 Connect the output plug of power adapter to the plug of DC5.0V in the pedestal, and then put the main unit to the charging point of the pedestal, the curing light starts charging. The yellow indicator of the pedestal shines and green indicator turns off during charging, while the yellow indicator turns off and green indicator shines after charging finished.

6.10 The solidified depth of the curing light composite resin 10 seconds will not less than 4mm.

6.11 The optical fiber can be autoclaved under the high temperature of 135℃ and pressure 0.22 Mpa. (Refer to EN13060 standard)

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7. Light Intensity Measurement

7.1 Connect the output plug of power adapter to the plug of DC5.0V in the pedestal.
7.2 Choose general mode and aim the optical fiber at the measurement point, press on / off button, the present light intensity is displayed on the indicator of pedestal.

8. Precaution

8.1 Please recharge the battery at least 4 hours before first time usage.
8.2 During clinical operation, make the light source focuses directly on the resin which is needed solidification, avoiding to point to incorrect position and affecting solidification effects.
8.3 It is forbidden to point blue light to the eyes.
8.4 Only the original pedestal charger, adapter and Lithium battery could be used, because other brand pedestal charger, adapter and Lithium battery are likely to damage the circuit.
8.5 It is forbidden to use metal or other conductors to touch the main unit and the charging point of pedestal because it may burn the internal circuit or make the li-ion battery short circuit.
8.6 Please charge the battery in cool and ventilative room.
8.7 It is forbidden to disassemble the battery, or it may cause short circuit and electrolyte leakage.
8.8 It is forbidden to extrude, shock or vibrate the battery. It is forbidden to make the battery short circuit. It is forbidden to put the battery together with metal.
8.9 If it is not used for a long time, the battery must be taken out to save.
8.10 This equipment has electromagnetic interference. Do not use this equipment on the patients with artificial pacemaker or around the electronic operation. It should be cautious to use this equipment in the strong electromagnetic interference environment, since it will be

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interfered by other equipments.

① WARNING: If the curing light works for 40s continously, the temperature of the top of optical fiber may reach 56℃."

② WARNING: Do not modify this equipment without authorization of the manufacturer.

9. Contraindication

The heart disease patients, pregnant women and children should be cautious to use this equipment.

10. Daily maintenance

10.1 This equipment does not include the self-maintainable spare parts. The maintenance of this equipment should be taken by the appointed professional or special repair shop.

10.2 Only the optical fiber of this equipment can be autoclaved under high temperature and pressure. Other parts should be cleaned by clean water or neutral sterilized liquid. Do not soak. Do not use highly volatile and diffluent solvent to clean this equipment, which can cause the signs on the control panel to fade.

10.3 Please clean the resin remained on the surface of optical fiber after using to avoid infecting the life-span or solidified effect.

11. Troubleshooting

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Faults	Possible causes	Solutions
Non-indication, non-act.	1. The battery in the curing light has no power. 2. Battery protection caused by the external reasons. 3. Battery is damaged.	1. Connect to the Adapter to charge/ change the battery. 2. Charge the main unit to stop the protection. 3. Change the battery.
The charging indicator on the pedestal twinkles when charge.	1. The battery voltage is too low. 2. Battery is damaged.	1. Return to normal state automatically after charging 15 minutes. 2. Change the battery.
Light intensity is insufficient.	1. The optical fiber is not inserted into the bottom. 2. The optical fiber is cracked. 3. There is resin remained on the surface of optical fiber.	1. Please reinstall the optical fiber. 2. Please change the optical fiber. 3. Please wipe off the remained resin.
The equipment can not charge after connecting.	1. The adapter is not inserted well. 2. Adapter is damaged or the specification is not matching. 3. The charging point is impurity.	1. Pull out the adapter then reconnect. 2. Change the adapter. 3. Cleaned by the alcohol.

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Faults	Possible causes	Solutions
The using time of battery becomes short after charging.	The battery capacity is decreased.	Change the battery.

If all the above solutions have been completed, the machine still can not work normally. Please contact our special repair shop or us.

12. Packing list

The components of the machine are listed in the packing list.

13. Storage and transportation

13.1 The equipment should be handled carefully and lightly, kept away from the shaking source, installed or stored at shadowy, dry, cool and ventilated places.
13.2 Don't store the equipment together with articles that are combustible, poisonous, caustic, and explosive.
13.3 This equipment should be stored in the environment where the humidity is ≤80%, the atmosphere pressure is 70kPa~106kPa and the temperature is -10℃~55℃.
13.4 Excessive impact or shake should be prevented during transportation. Handle with care. Do not place upside down.
13.5 Don't put it together with dangerous articles during transportation.
13.6 Keep it away form the sun, rain or snow during transportation.

14. After service

From the date this equipment has been sold, based on the warranty card, we will repair this equipment free of charge if it has quality problems, please refer to the warranty card for the warranty period.

15. For technical data, please contact

EC REP Wellkang Ltd (www.CE-Marking.eu)
29 Harley St.,LONDON,W1G 9QR,UK

16. Symbol instruction



Trademark


Screw inside/outside


Type B applied part


Class II equipment

Ordinary equipment


CE mark product


Date of manufacture



FDA marked product


Manufacturer


Used indoor only


Handle with care


Recovery



Humidity limitation


Keep dry



Temperature limitation



Atmospheric pressure for storage


Appliance compliance WEEE directive


Consult the accompanying documents

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EC REP Authorised Representative in the EUROPEAN COMMUNITY

17. Environmental protection

There are no harmful factors in our product. You can deal with it based on the local law.

18. Statement

All rights of modifying the product are reserved to the manufacturer without 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 patents by WOODPECKER, any copy or fake product must take legal responsibilities.

19. Declaration of conformity

19.1 Product conforms to the following standards

EN 60601-1:2006	EN 60601-1-2:2007
EN 60601-1-6:2010	EN 62366:2008
EN 60825-1:2007	EN 980:2008
ISO 9687:1993	EN 1041:2008
ISO 15223-1-2012	EN ISO 14971:2012
EN ISO 17664:2004	EN ISO 17665-1:2006
EN ISO 7405:2008 +A1:2003	EN ISO 10993-1:2009
EN ISO 10993-5:2009	EN ISO 10993-10:2010

19.2 EMC - Declaration of conformity

The device has been tested and homologated in accordance with EN 60601-1-2 for EMC. This does not guarantee in any way that this device will not be effected by electromagnetic interference Avoid using the device in high electromagnetic environment.

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Guidance and manufacturer's declaration - electromagnetic emissions		
The model LED.F is intended for use in the electromagnetic environment specified below. The customer or the user of the model LED.F should assure that it is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic environment - guidance**
RF emissions CISPR 11	Group 1	The model LED.F uses 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 model LED.F is 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 emissions IEC 61000-3-2	Class A	
Voltage fluctuations / flicker emissions IEC 61000-3-3	Not applicable	

Guidance & Declaration — electromagnetic immunity			
The model LED.F is intended for use in the electromagnetic environment specified below. The customer or the user of the model LED.F 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	±6 kV contact ±8 kV air	±6 kV contact ±8 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 transient/burst IEC 61000-4-4	±2kV for power supply lines ±1 kV for Input/output lines	±2kV for power supply lines	Mains power quality should be that of a typical commercial or hospital environment.
Surge IEC 61000-4-5	±1 kV line to line ±2 kV line to earth	±2 kV line to earth	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 40 % U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 cycles <5% U_T (>95 % dip in U_T) for 5 sec	<5 % U_T (>95% dip in U_T) for 0.5 cycle 40 % U_T (60% dip in U_T) for 5 cycles 70% U_T (30% dip in U_T) for 25 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 model LED.F requires continued operation during power mains interruptions, it is recommended that the model LED.F be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	Not applicable	Not applicable
NOTE U_T is the a.c. mains voltage prior to application of the test level.			

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Guidance & Declaration - Electromagnetic immunity			
The model LED.F is intended for use in the electromagnetic environment specified below. The customer or the user of the model LED.F should assure that it is used in such an environment.			
Immunity test	**IEC 60601 test level**	**Compliance level**	**Electromagnetic environment - guidance**
			Portable and mobile RF communications equipment should be used no closer to any part of the model LED.F, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance
Conducted RF IEC 61000-4-6 Radiated RF IEC 61000-4-3	3 Vrms 150 kHz to 80 MHz 3V/m 80 MHz to 2.5 GHz	3V 3 V/m	3V $d=1.2\times P^{1/2}$ 80 MHz to 800 MHz $d=2.3\times P^{1/2}$ 800 MHz to 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, [a] should be less than the compliance level in each frequency range. [b] 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 model LED.F is used exceeds the applicable RF compliance level above, the model LED.F should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the model LED.F.

[b] Over the frequency range 150 kHz to 80 MHz, field strengths should be less than 3V/m.

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Recommended separation distances between portable and mobile RF communications equipment and the model LED.F

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

Rated maximum output power of transmitter W	Separation distance according to frequency of transmitter m		
	150kHz to 80MHz $d=1.2\times P^{1/2}$	80MHz to 800MHz $d=1.2\times P^{1/2}$	800MHz to 2,5GHz $d=2.3\times P^{1/2}$
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 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.

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Scan and Login website for more information

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