Industrial design patent No.: CN201230421494.2
Please read this manual before operating

DTE®

LUX VI Curing light Instruction Manual

FDA CE

GUILIN WOODPECKER MEDICAL INSTRUMENT CO., LTD.
www.glwoodpecker.com

Content

1. Introduction

1.1 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.

1.2 Principle and usage

1.2.1 LUX VI adopts the principle of ray radiation to solidify the light-sensitive resin by shooting at it in a short time.

1.2.2 This product is used to restore teeth.

1.3 Features

1.3.1 The solidification effect is not affected by the consumption of remaining power.

1.3.2 A full charge can be used for more than 300 times continuously under 10s working time mode.

1.3.3 Ergonomic design, small and convenient.

1.3.4 Special light hood and holder design, high effectively filtering light.

2. Structure and components

LUX VI curing light (dentistry) is mainly composed by high power LED, optical fiber, and main unit.

3. Technical specifications

3.1 Size: 234mm×26mm×26mm

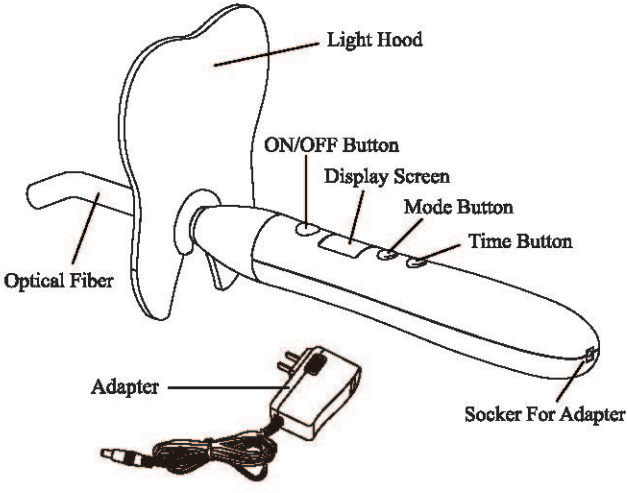
3.2 Net weight: 100g

3.3 Power source:

3.3.1 Power supply: rechargeable Lithium battery

3.3.2 Rechargeable Lithium battery

Battery mode: ICR 14500
Battery voltage and capacity: 3.7V/750mAh
Battery has protection against Over-voltage, over-current and short circuit.



Picture 1

3.3.3 Adapter
Power Input: AC100V - 240V, 50Hz/60 Hz
Input Power: 10VA
Power Output: DC5V/1A
3.4 Applied part: Optical fiber
3.5 Light source:
3.5.1 5W high power blue light LED
3.5.2 Classes: Class I
3.5.3 AEL: 3.9×10^{-3}J
3.5.4 Checking method: the LED light is fine when the light is on during

operating correctly.
3.5.5 The wave length of this product can match with the clinical dental resin solidification, such as 3M, Dentsply etc.
3.5.6 Wave length: 420nm-480nm
3.6 Light intensity: 1000mW/cm^2-1200mW/cm^2
3.7 Light effective acreage: 50mm^2
3.8 Working condition:
3.8.1 Environment temperature: +5℃～+40℃
3.8.2 Relative humidity: ≤80%
3.8.3 Atmosphere pressure: 70kPa～106kPa
3.9 Equipment safety
3.9.1 Operating mode: intermittent operation
3.9.2 Protection type against electrical shock: class II
3.9.3 Protection degree against electrical shock: type B
3.9.4 Protection against harmful ingress of water or particular matter: ordinary equipment (IPX0).
3.9.5 Safety in the presence of flammable anesthetic mixture with air, oxygen or nitrous oxide: not suitable under this condition.

4. Install and uninstall way

4.1 Take off the red cap from the optical fiber, and then insert the metal part into the front of main unit (make sure to screw the fiber to the end).
4.2 Fix the light hood on the bottom of the optical fiber.
4.3 Please do the opposite way above when uninstall charge the optical fiber.

5. Operation

5.1 Press the mode button to set the working mode, the corresponding indicator will be on when a mode is set.
5.1.1 Full power: screen shows 01, LED works in full power (Mode

for recommendations to clinical use)
5.1.2 Ramping mode: screen shows 02, LED turns from weak to stronger, and reaches the highest power in 5 seconds.
5.1.3 Pulse mode: screen shows 03, LED works on the pulse condition.

5.2 Press the time button to set the solidifying time, 4 working times are available:5, 10, 15, 20 seconds.
5.3 During the operation, please focus on the 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 5 seconds, it stops working when counting down to "0".
5.4 During the operation, the blue light can be stopped by press the power button at any time.
5.5 After a working cycle, operator can press the ON/OFF button to start another working cycle. Stop operating if the equipment began to heat obviously, do not restart until the equipment cool down. Suggest continues working cycle less than 10 times.
5.6 Low power detect circuit is fixed inside of the main unit, when low power is detected, the display screen of main unit will wink, please charge in time.
5.7 When the battery needs to be charged, connect the plug of the adapter into the AC100V-240V power supply. Then connect the output plug of the adapter to the DC 5.0V input plug in the main unit, the display screen light flashes in cycles, When charging is finished, display screen indicators are all on.
5.8 When operation is finished, please clean the optical fiber with calico in order not to affect the light intensity.
5.9 This equipment will turn off automatically if don't any action within 2 minutes, turn it on by pressing any button.
5.10 The depth of solidification of composite is no less than 4mm per 10 seconds.
5.11 The curing light is equipped with over-heat protection system. It can continuously work 200s, For example, continuously operate the curing

light for 10 times under 20s working mode (even the curing light works less than 20s, it is counted as a full operation), then it will come into over-heat protection status. And only after 2-minute sleep, it can restart working 200s continuously.

6. Precaution

6.1 Please recharge the battery at least 4 hours before first time usage.
6.2 Optical fiber is fragile, which is forbidden to beat, crush or drop.
6.3 During operation, the blue light should be aimed straightly at the composite resin to ensure the effect of solidification.
6.4 Avoid aiming the blue light at eyes directly. Please use the original light hood or special curing light glasses to protect eyes.
6.5 The power adapter is considered as a part of the device. Please use the power adapter and lithium battery which is designed and supplied by our company. It may cause potential dangers to operator and patient by using the power adapter and lithium battery which is designed and supplied by other manufacturers.
6.6 It is forbidden to use metal or other conductors to touch the charging point of main unit, because it may burn the internal circuit or make the lithium battery short circuit.
6.7 Please recharge the battery in cool and ventilated room.
6.8 It is forbidden to self-taking apart the battery, in order not to result in short- circuit or leakage.
6.9 It is forbidden to extrude, shake or rock the battery. The Li-ion battery is forbidden to be in short circuit situation and it is forbidden to put the battery with metal or other conductors.
6.10 For professional dentist use only.
6.11 Not to position the device so that it is difficult to operate the adapter.
6.12 The machine is with two status: charging and working on the patient.
[WARNING]:When charging, it could be not used on the patient; when working on the patient, it could not be allowed to connect the power adapter.

[WARNING]: If the curing light works for 40s continously,the temperature of the top of optical fiber may reach 56℃.
[WARNING]: Do not modify this equipment without authorization of the manufacturer.

7. Contraindication

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

8. Daily maintenance

8.1 This equipment does not include the self-maintenance parts, so it should be performed by professional or special maintenance shop.
8.2 Users can change the light hood and optical fiber on-site. Please use accessory which is designed and supplied by our company, contract with the local dealer or our company if you want to buy. It may cause potential dangers to curing light or other damages which is designed and supplied by other manufacturers.
8.3 Only the optical fiber of this equipment can be autoclaved under high temperature and high pressure, other parts should be cleaned by clean water or neutral sterilized liquid, but do not soak the equipment in the water. Do not clean by volatile or soluble liquid, otherwise the marks of the control panel will fade.
8.4 Please clean the optical fiber to avoid the remaining resin on the surface and infect the life-span and the effectiveness of solidification.

9. Packing list

The components of the equipment are list in the packing list.

10. Troubleshooting

Faulty	Possible cause	Solutions
No indication, no response.	1. Battery is out of power. 2. Faulty of battery. 3. Short circuit of charging port, battery enters the state of protection.	1. Charge the equipment. 2. Send to after service for change a new battery. 3. Plug the adapter then activates the battery.
"Er" or "Ed" shown on the screen.	Faulty of main unit.	Send to after service for repair.
"EA" shown on the screen.	1. Wrong adapter 2. Faulty of main unit.	1. Use the original adapter 2. Send to after service for repair.
Screen flickers.	Low battery.	Reconnect the charger, if screen flickers again, after 15 minutes please send back to after service to change the battery.
Light intensity is weak.	There is resin on the top of the optical fiber.	Clear the resin.
Not charging when the adapter is connected.	1. The adapter is not connected well. 2. Faulty of adapter or incompatible.	1. Reconnect. 2. Change the adapter.
Effective duration of the battery become short.	The capacity of the battery decreased.	Send to after service for change a new battery.

If the problem still can't be solved, please contact with local dealer or manufacturer.

11. Storage and transportation

11.1 The equipment should be handled carefully and lightly. Be sure that it is far from the vibration, and installed or kept in a cool, dry and ventilated place.
11.2 Don't store the machine together with the articles that are combustible, poisonous, caustic, and explosive.
11.3 This equipment should be stored in a room where the relative humidity is ≤80%, atmospheric pressure is 70kPa to106kPa, and the temperature is -10℃ to +55℃.
11.4 Excess impact or shake should be prevented during transportation, lay it carefully and do not invert it.
11.5 Don't put it together with dangerous goods during transportation.
11.6 Avoid solarization and getting wet in rain or snow during transportation.

12. After service

From the date this equipment has been sold, base 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.

13. Environment protection

There is no harmful factor in this product. It can be dealt based on the local law.

14.Representative in Europe

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

15. Symbol instructions

DTE. Trademark

CE marked product

Type B applied part

FDA marked product

Screw inside/ outside

Class II equipment

IPX0 Ordinary equipment

P ON/OFF button

M Mode button

T Time button

Date of manufacture

Manufacturer

Recovery

Used indoor only

Keep dry

Handle with care

-10℃ +55℃ Temperature limitation

0% 80% Humidity limitation

70 106 Atmospheric pressure for storage

Appliance compliance WEEE directive

Consult the accompanying documents

EC REP Authorised Representative in the EUROPEAN COMMUNITY

16. 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.

17. Declaration of conformity

17.1 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

17.2 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

Guidance and manufacturer's declaration - electromagnetic emissions		
The model LUX VI is intended for use in the electromagnetic environment specified below. The customer or the user of the model LUX VI should assure that it is used in such an environment.		
Emissions test	**Compliance**	**Electromagnetic environment - guidance**
RF emissions CISPR 11	Group 1	The model LUX VI use RF energy only for its internal function. Therefore, its RF emissions are very low and are not likely to cause any interference in nearby electronic equipment.
RF emissions CISPR11	Class B	The mode LUX VI 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	Complies	

Guidance & Declaration — electromagnetic immunity			
The model LUX VI is intended for use in the electromagnetic environment specified below. The customer or the user of the model LUX VI 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 ±1kV for interconnecting cable	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	±1 kV line to line	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 LUX VI require continued operation during power mains interruptions, it is recommended that the model LUX VI be powered from an uninterruptible power supply or a battery.
Power frequency (50/60 Hz) magnetic field IEC 61000-4-8	3 A/m	3 A/m	Power frequency magnetic fields should be at levels characteristic of a typical location in a typical commercial or hospital environment.
NOTE U_T is the a.c. mains voltage prior to application of the test level.			

Guidance & Declaration - Electromagnetic Immunity

The model LUX VI is intended for use in the electromagnetic environment specified below. The customer or the user of the model LUX VI 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 3 V/m 80 MHz to 2.5 GHz	*3V* *3 V/m*	Portable and mobile RF communications equipment should be used no closer to any part of the model LUX VI, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. **Recommended separation distance** $d=[3,5/V_1]\times P^{1/2}$ $d=1.2\times P^{1/2}$ 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 I 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 LUX VI is used exceeds the applicable RF compliance level above, the model LUX VI should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the model LUX VI.

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

Recommended separation distances between portable and mobile RF communications equipment and the model LUX VI

The model LUX VI is intended for use in electromagnetic environment in which radiated RF disturbances is controlled. The customer or the user of the model LUX VI can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the model LUX VI is 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 I 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.

will not be effected by electromagnetic interference Avoid using the device in high electromagnetic environment.

Scan and Login website
for more information

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