1.Product Description

1.1 Preface

Optimal polymerization and curing is an important requirement for all light-curing materials to meet stable and high-quality repairs. The choice of curing light plays a decisive role. Therefore, we thank you very much for purchasing our curing light . It has been designed according to the latest technology and related industry standards and is a high-quality medical device. The user manual will help you start the device safely, make full use of its functions, and ensure its service life. If you have any further questions, please do not hesitate to contact us.

1.2 Product principle and scope of application

1.2.1 Product principle: It uses light-emitting diodes (the silicon dioxide crystal emits blue light under the action of electric current) as the light source, which emits a light source of a certain wavelength effective to the photosensitive resin, illuminates the photosensi tive resin and achieves curing.

1.2.2 Scope of application: for clinical use,by emitting blue light of a specific wavelength to make the dental curing material which used for filling, repair and sealing can be cured.

1.3 Features

1.3.1 Constant light power output will not affect the curing effect due to the decrease of battery current during use.

1.3.2 Fast charging, the maximum charging current reaches 2A. That is, within 120 minutes the battery is fully charged;

1.3.3 The memory function can automatically save the last use data of the curing light. When it is turned on again, the data will be run first.

2.Product Performance Structure And Composition

2.1 Structure and composition

It is composed of host, power adapter and charging stand.

2.2 Product model

X.

2.3 Mode: high light intensity mode, slow start mode, pulse mode.

3. Technical Parameters

3.1 Dimensions: Handle:28.5mm×35mm×203mm;
Charging base: 65.6mm×69mm×122mm;
(All the above are the maximum size)

3.2 Weight: Handle: 96 grams;
Charging stand: 99 grams;
Total weight: 551 grams;

3.3 Power

3.3.1 Classification by power supply: powered by rechargeable batteries.

3.3.2 Rechargeable lithium battery.

Battery model: 16650.
Nominal voltage: 3.7V.
Capacity: 2500mAh.
The battery is protected against overvoltage, overcurrent and short circuit.

3.3.3 Power adapter

Input voltage: AC100～240V 50Hz/60Hz
Input power: 10VA
Output voltage: DC 5V
Input current: 0.35A
Output current: 2A
Built-in fuse: T1A250V

3.4 The performance of LED lights

3.4.1 5W high power blue LED light

3.4.2 Category 1

3.4.3 Emission limit (AEL): 3.9×10 — 3J

3.4.4 Inspection method: LED lights will glow when used correctly, indicating that the lights are in good condition.

3.4.5 All dental resin materials commonly used in clinical practice can match the wavelength of this curing machine, With resins such as 3M and Dentsply.

3.4.6 The radiation in the wavelength range of 400nm～515nm (blue light) is not less than120mW/cm^2
Radiation in the wavelength range of 190nm～385nm (blue light) is not less than 100mW/cm^2
The radiation exceeding the wavelength range of 515nm is not less than 100mW/cm^2

3.4.7 Optical effective area of light source: 50mm^2

3.5 Use environment

Environment temperature: +5°C~+40°C
Relative humidity is not more than 80%
Atmospheric pressure: 75kPa～106kPa

3.6 Equipment safety classification

Classified by operating mode: short-term operating equipment;
Classified according to the type of electric shock protection: Class II;
Classified according to the degree of protection against electric shock: Type B application part;
Classified according to the degree of protection against ingress of liquid: ordinary equipment (IPX0)
Classification of safety degree when used in the case of flammable anesthetic gas mixed with air or flammable anesthetic gas mixed with nitrous oxide: non-AP/APG type.

4. Installation And Removal Method

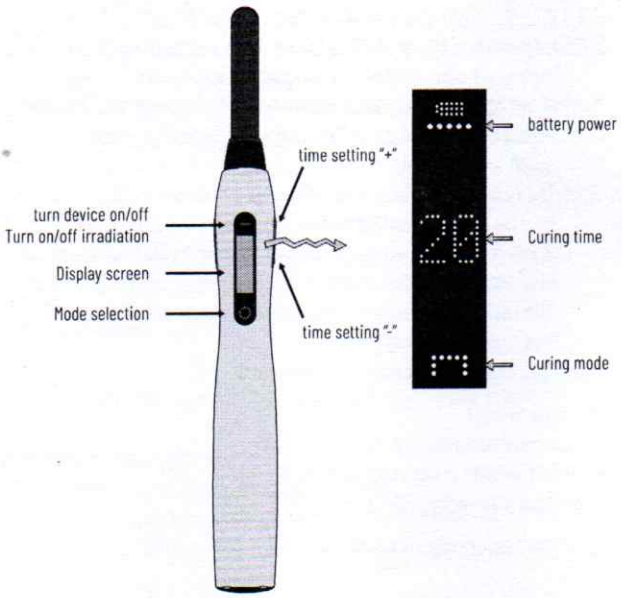
4.1 Applicable to model X.

4.1.1 The head of the main unit can be rotated 360° left and right.

4.1.2 When charging is usually required, connect the power adapter to the 100V～240V network, and then insert the output plug of the power adapter into the charging jack marked DC5.0V in the charging base, and then put the host into the charging base to charge.

5. Operation And Function Description

Schematic diagram of appearance



5.1 Charge the light curing handle for the first use. Insert the DC plug of the power adapter into the DC socket on the back of the charging base, and then insert the power adapter into the external power socket, and finally put the handle on the charging base; after the handle is placed in the charging base, it will immediately enter the charging state. The following table:

Screen display status	Description
	charging...
	The battery is fully charged or fully charged

5.2 Long press the "○" button to select the mode. Short press the "○" button to set the irradiation time, the mode and time are detailed in the table below:

Mode	Mode symbol	Times
1S mode		2sec.
High intensity mode		3sec. , 5sec. , 10sec.
Slow start mode		5sec. , 10sec. , 15sec.
Pulse mode		5sec. , 10sec. , 15sec.

1S mode: irradiate with the blue light by 50% above full power.
High intensity mode: irradiate with blue light by full power
Progressive mode: the blue light power gradually increase from weak to strong, reaches the maximum power in 5 seconds and maintains until the end.
Pulse mode: The blue light works in pulse mode.
The curing light can record the last using data automatically.

5.3 Press the "—" button to turn on or off the light. When the light curing handle is closed, you must first press the "—" button to turn on the lightcuring handle;

5.4 When not in use, long press the "—" button for more than 2 seconds, the light curing machine enters a low energy standby state; or the light curing machine automatically enters a low energy standby state after 2 minutes;

5.5 Voice prompt:

a. When a beep sounds: power on or off, every time you press the button, start the instrument to irradiate and automatically shut down;

b. The situation of two continuous beeps: turn off the instrument irradiation or interrupt the instrument irradiation;
c. When three beeps are continuously sounded: the remaining battery power is 20%, and the battery icon flashes;
d. When six beeps are continuously sounded: the remaining battery power is 10%, the blinking frequency of the battery icon increases, and it needs to be charged immediately;

5.6 The curing depth of this machine for light-curing composite resin is not less than 4mm for 10 seconds.

5.7 When charging is needed, insert the host into the charging base, and when not charging, please unplug the charging base.

6. Safety Precautions

6.1 Please charge at least 4 hours before using the machine for the first time.

6.2 The strength of the curing light can cause heat to build up around the tip of the device. Users should be extra cautious to prevent direct contact with skin, oral mucosa or gums during use. This equipment is for professional use only.

6.3 In clinical use, the light source should be directly irradiated on the cured resin material, and the irradiation position is improperly placed, which will affect the curing effect.

6.4 The blue light is strictly prohibited to irradiate the eyes to prevent blue light from harming the eyes. It is recommended to wear special light curing glasses for protection when using it.

6.5 This product should be kept out of the reach of children.

6.6 Do not use for patients with a history of photobiological diseases such as solar urticaria or erythropoietic protoporphyria or patients who are receiving photosensitizing drugs.

6.7 The exposure must be limited to the area of the oral cavity where clinical treatment is planned.

6.8 Only use the charger, power adapter and battery provided by the original manufacturer. The use of third-party accessories may cause damage to the equipment and may cause harm to the user/patient.

6.9 It is strictly forbidden to insert metal or other conductors into the charging socket of the host to avoid short-circuiting the internal circuit or burning the lithium battery.

6.10 Please charge the battery in a cool, ventilated room.

6.11 It is strictly prohibited to disassemble the battery without authorization, otherwise it will cause a short circuit or electrolyte leakage.

6.12 It is strictly forbidden to squeeze, shake or shake the battery, short-circuit the battery, or put the battery together with metal objects.

7. Product Contraindications

Use with caution in heart patients, pregnant women and young children.

8. Daily Maintenance And Disinfection

8.1 This product does not contain self-maintained parts, and machine maintenance should be carried out by professionals designated by the company. If you have any questions, please call our after-sales service department or contact your dealer.

8.2 It is forbidden to use related accessories of other brands to avoid damage to the curing light or other dangers.

8.3 If this product or accessories need to be cleaned or disinfected, please unplug the power supply, wipe it with clean water or disinfectant, do not soak; do not use volatile and soluble solvents for cleaning, which will cause the markings on the machine to fade .

8.4 Please use 75% alcohol cotton ball to scrub the light outlet lens to avoid pollution and reduce the light guide effect after each use.

8.5 After each use, check whether there is any residue left on the end surface of the light-emitting port of the head of the host, so as not to affect the curing effect.

9. Package Content

1×host handle; 1×charging base; 1×power adapter; 1×user manual.

10. Disposal

Please dispose of used equipment with batteries in accordance with relevant national laws and regulations. Please contact your local waste disposal contractor.

11. Warranty

The company guarantees that the light curing machine will not have defects in materials and workmanship if it is used properly within 12 months from the date of purchase. During this 12-month warranty period,

the company will repair or replace any defective equipment.
If you have other questions, comments or need to know product information, please call our after-sales service department or distributor.
Damage caused by misuse, negligence, accident or abuse is not covered by this warranty.

12. Logo Description


Date of manufacture


Class II equipment


Used Indoor only


Handle with care


Humidity limitation for storage


Temperature limitation for storage

CE mark product


Consult the accompanying documents


Manufacturer


Type B applied part


Appliance compliance WEEE directive


Keep dry


Recovery


Atmospheric pressure for storage


NOTE, reference notes


Refer to instrucion manual/booklet

EC REP Authorised Representative in the EUROPEAN COMMUNITY

13. EMC-Declaration Of Conformity

The device has been tested and homeologated in accordance with EN60601 -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.

Guidance and manufacturer's declaration - electromagnetic emisssions		
The curing light units are intended for use in the electromagnetic environment specified below. the customer or the user of the curing light units should assure that it is used in such an environment.		
Emmissions test	**Compliance**	**Electromagnetic environment - guidance**
RF emissions CISPR 11	Group 1	The curing light units use RF energy only for its internal function. Therefore, its RF emissions are very low and are not likey to cause any interference in nearby electronic equipment.
RF emissions CISPR 11	Class B	The curing light units 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 emissions IEC61000-3-2	Class A	
Voltage fluctuations/ flicker emissions IEC 61000-3-3	Complies	

Guidance & Declaration - electromagnetic immunity			
The curing light units are intended for use in the electromagnetic environment specified below. the customer or the user of the curing light units 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, ±4kV, ±8kV, ±15kV air	±8 kV contact ±2 kV, ±4kV, ±8kV, ±15kV air	Floors should be wood, concrete or ceramic tile. If floors are covered with synthetic material, the relative humidity should be at least 30%.
Electrical fast transient/burst IEC 61000-4-4	±2 kV for power supply lines ±1 kV for Input/output lines	±2 kV for power supply lines ±1 kV 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% UT (>95% dip in UT.) for 0.5 cycle 40% UT (60% dip in UT.) for 5 cycles 70% UT (30% dip in UT) for 25 cycles <5% UT (>95% dip in UT) for 5 sec.	<5% UT (>95% dip in UT.) for 0.5 cycle 40% UT (60% dip in UT.) for 5 cycles 70% UT (30% dip in UT) for 25 cycles <5% UT (>95% dip in UT) for 5 sec.	Mains power quality should be that of a typical commercial or hospital environment. If the user of the curing light units require continued operation during power mains interruptions, it is recommended that the curing light units be powered from an uninterruptible power supply or a battery.
Power frequency (50/60Hz) 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 tupical commercial or hospital environment.
NOTE UT is the a.c. mains voltage prior to application of the test level.			

Guidance & Declaration - electromagnetic immunity			
The curing light units are intended for use in the electromagnetic environment specified below. the customer or the user of the curing light units 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	3Vrms 150kHz to 80MHz 6Vrms in ISM bands 3V/m 80MHz to 2.7GHz 385MHz -5785MHz Test specifications for ENCLOSURE PORT IMMUNITY to RF wireless communicati on equipment (Refer to table 9 for IEC 60601-1-2:2014)	3Vrms 150kHz to 80MHz 6Vrms in ISM bands 3V/m 80MHz to 2.7GHz 385MHz -5785MHz Test specifications for ENCLOSURE PORT IMMUNITY to RF wireless communicati on equipment (Refer to table 9 for IEC 60601-1-2:2014)	Portable and mobile RF communications equipment should be used no closer to any part of the curing light units, including cables, than the recommended separation distance calculated from the equation applicable to the frequency of the transmitter. Recommended separation distance $d=[3.5/V1]\times P^{1/2}$ $d=1.2\times P^{1/2}$ 80MHz to 800MHz $d=2.3\times P^{1/2}$ 800MHz to 2.5GHz where P is the maximum output power rating of the tansmitter In watts (W) according to the tansmitter 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 amy occur In the vicinity of equipment marked with the following symbol:
NOTE 1 At 80MHz end 800MHz. the higher frequency rance 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 throretically with accuracy. To assess the electromagnetic environment due to fixed RF transmitters, an electromagnetic site surey should be considered. If the measured field strength in the location in which the curing light units are used exceeds the applicable RF compliance level above, the curing light units should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the curing light units.
[b] Over the frequency range 150kHz to 80MHz, field strengths should be less than 3V/m.

Recommended separation distances between portable and mobile RF communications equipment and the curing light units			
The curing light units are intended for use in electromagnetic environment in which radiated RF disturbances is controlled. The customer or the user of the curing light units can help prevent electromagnetic interference by maintaining a minimum distance between portable and mobile RF communications equipment (transmitters) and the curing light units are recommended below, according to maximum output power of the communications equipment.			
Rated maximum output power of transmitter	**Separation distance according to frequency of transmitter m**		
	150 kHz ~ 80 MHz d = 1.2×P1/2	**80 MHz ~ 800 MHz d = 1.2×P1/2**	**800 MHz ~ 2.5 GHz d = 2.3×P1/2**
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 rates at amaximum output power not listed above, the recommended separation distance d in meter (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 80MHz an 800MHz. the separation ditance 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.			

14. Storage and transportation

14.1 This equipment should be handled carefully, kept away from shaking point, installed or shadowy, dry, cool and ventilated places.

14.2 Don't store it together with articles that are combustible, poisonous, caustic and exlosive.

14.3 This equipment should be stored in the environment where the relative humidity is 0%~80%, the atmosphere pressure is 75kPa to 106kPa and the temperature is -10℃ to +55℃.

14.4 Eccess impact or shake should be avoided during transportation.

14.5 Don't mix it with dangerous articles during transportation.

14.6 Keep it away from sun or snow or rain during transportation.