

Curing Light Instruction Manual



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1 Product Description

1.1 Product Introduction




1s Curing Light (M-Cure3/M-Cure6/M-Cure8/M-Cure9) adopts the principle of ray radiation to solidify the light-sensitive resin by shooting at it in a short time.

The main features of 1s Curing Light are:

- 1) Four models of 1s Curing Light with eight working modes in total.
- 2) Constant output optical power. And the curing effect will not be affected due to the decrease of battery power.
- 3) 1s fast curing light.
- 3) Efficient electro-optic conversion efficiency. The device can be used continuously for more than 400 times (based on 10s light per time) with a full charged battery.

1.2 Model and Specification

Model: M-Cure 3、M-Cure 8、M-Cure 9

Type	M-Cure 3	M-Cure 8	M-Cure 9
Size	228.5*26*26mm	228.5*26*26mm	218.5*26*26mm
Weight	126g	126g	126g
Structure and components	Mainly composed by main unit, top of the main unit,LED, light hood, bracket, battery, adapter, disposable sleeve.	Mainly composed by main unit, top of the main unit,LED, light hood, bracket, battery, adapter, disposable sleeve.	Mainly composed by main unit, top of the main unit,LED, light hood, bracket, battery, adapter, disposable sleeve.
Specification	Battery:3.7V/1500mAh Display screen:OLED	Battery:3.7V/1500mAh Display screen:OLED	Battery:3.7V/1500mAh Display screen:OLED
Circuit structure	Circuit Control chip, OLED drive circuit	Circuit Control chip, OLED drive circuit	Circuit Control chip, OLED drive circuit
Working mode	Five working modes: (Efficient curing mode:M1、 Deep curing mode:M2、 High power mode:M3、 Fast curing mode、 Caries checking mode)	Five working modes: (Fast curing mode、 Soft mode、 Pulse mode、 Ortho mode、 Caries checking mode)	Eight working modes: (Efficient curing mode:M1、 Deep curing mode:M2、 High power mode:M3、 Fast curing mode、 Soft mode、 Pulse mode、 Ortho mode、 Caries checking mode)
Top of main unit			

1.3 Structure and Components

The curing light is mainly composed by main unit, top of main unit, light hood, bracket, battery, adapter, disposable sleeve.

1.4 Principle and usage

Is curing light adopts the principle of ray radiation to solidify the light-sensitive resin by shooting at it in a short time. This device is used to restore teeth.

The device can only be used by the dentist who is qualified and well trained. This device is used on dental patient in the place of hospital or professional medical site.

1.5 Contraindications

It is forbidden to use this instrument in the following situations:

1.5.1 The doctor with a pacemaker is disabled.

1.5.2 Patient with cardiac pacemakers (or other electrical equipment) are warned not to use small appliances (such as Electric razors, hair dryers, etc.) patients are disabled.

1.5.3 The patient who is sensitive to light.

1.5.4 Hemophilia patients are banned.

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

1.6 Product configuration

1.6.1 Appearance Identification



Model: M-Cure 9







Model: M-Cure 8



Model: M-Cure 3

1.6.2 Components and Accessories

Main unit	Adapter	Bracket	Light hood
			

1.7 Warning

This section contains descriptions of serious side effects and potential safety risks for the product itself and users/patients. The following warning clauses must be read before use:

1.7.1 The instrument can only be used by professional dentists in accordance with national regulations.

1.7.2 The instrument can only be used in designated places and cannot be used outdoors.

1.7.3 The instrument requires special precautions regarding electromagnetic compatibility (EMC) and must be in strict accordance with the EMC information for installation and use. Do not use this equipment especially in the vicinity of fluorescent lamps, radio transmitting devices, remote control devices, handheld and mobile high frequency communication devices.

1.7.4 It is forbidden to expose the instrument directly or indirectly to a heat source. The instrument must be operated and stored in a safe environment.

1.7.5 It is forbidden to use it under conditions with flammable anesthetic mixtures.

1.7.6 Do not immerse it in liquid.

1.7.7 Only suitable for original accessories.

1.7.8 Please use original power adapter. Other power adapter will result in damage to lithium battery and control circuit.

1.7.9 Do not use damaged or defective instruments.

1.7.10 Do not carry out any repairs or modifications without authorization. In case of failure, please contact your local dealer and do not allow unauthorized personnel to repair.

1.7.11 Please do not make any changes to the device. Any changes may violate safety regulations, causing harm to the patient. There will be no promises of any modification.

1.7.12 Please confirm whether the file is well installed and locked before starting the motor handpiece.

1.7.13 The instrument complies with electromagnetic compatibility standards, but it is still necessary to prevent possible risks caused by electromagnetic interference.

1.7.14 Please remove the battery if the motor handpiece is not likely to be used for some time.

1.8 Instrument Safety Classification

1.8.1 Type of operation mode: Continuous operating device.

1.8.2 Type of protection against electric shock: Class II equipment with internal power supply.

1.8.3 Degree of protection against electric shock: B type applied part.

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

1.8.5 Degree of safety application in the presence of a flammable anesthetic mixture with air, oxygen, or nitrous oxide: Equipment cannot be used in the presence of a flammable anesthetic mixture with air, oxygen, or nitrous oxide.

1.9 The Main Technical Parameters

1.9.1 Lithium battery: 3.7V/ 1500mAh

1.9.2 Power Adapter:

Input: ~100V-240V 50Hz/60Hz 0.5A

Output: DC 5V/ 2A

1.9.3 Light source: 10W high power

1.9.4 Wave length: 385nm~515nm

1.9.5 Class: class 2

1.9.6 Check method: When operate machine properly, LED luminous means LED is in good condition.

1.9.7 The wavelength of our curing light machine can match with dental resin material which are commonly used on clinical, such as 3M and Dentsply.

1.9.8 Work condition:

1) Environment temperature: 0°C to +40°C

2) Relative humidity: 30%~80%

3) Atmosphere pressure: 70kPa to 106kPa

2 Product Installation

a) The installation of the top of main unit

Aim the mounting holes which on the upper of main unit, and make the top of main unit inserted to it (must screw the top of main unit to the end, don't inclined inserted). The top of main unit can rotate 360 degrees.

b) The installation of disposable sleeve

Take out the disposable sleeve and put it on the top of main unit.

WARNING:

- The disposable sleeves are single patient use only. Discard used disposable sleeves in standard waste after each patient.
- It must use original top of main unit.
- The top of main unit should be cleaned before each operation.



c) The installation of light hood

Clip the notch of the light hood into the head of the top of main unit, and then clamp the light hood down on the main unit.

d) Replace the battery

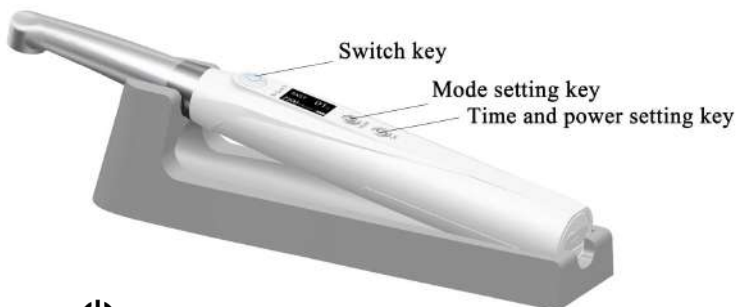
When replacing the battery, please open the battery cover, first remove the lithium battery, and then gently pull out the plug-in, put the new battery connector plug correctly into the host, and then put new battery in. Put the battery cover on the host mounting port, push up, and cover the battery.


e) Battery charging

The original charge must be used for charging. Plug the connector of the power adapter into the charging connector of the host when charging. The host sends out a ‘DI’ prompt tone, and the power indicator lights up at the same time. The status of breathing lamp in the  is gradual brighten and fade flashing. The charging symbol on the host screen is dynamically displayed in the state of charge. When the battery is fully charged, the power symbol on the host screen shows a full charge state and the breathing lamp in the  stop flashing.

It takes about 4 hours to fully charge the batter. Before using the equipment for the first time, the equipment shall be fully charged for at least 4 hours.

3 Product operation



- ① Switch key  ② Mode setting key ‘M’ ③ Time and power setting key ‘S’

The default settings of the eight working modes:

① Efficient curing mode:M1 (only suitable for M-Cure 3、M-Cure 9) :

The default light intensity is $1000\text{mW}/\text{cm}^2$.

When the output light intensity is 1000、1500、1800W/cm² , short press the S key to select of time which could be 5、10、15、20s .

When the output light intensity is $2300\text{mW}/\text{cm}^2$, short press the S key to select the work time which could be 1、2、3s .

② Deep curing mode:M2(only suitable for M-Cure 3、M-Cure 9) :

The default light intensity is $1500\text{mW}/\text{cm}^2$.

When the output light intensity is 1000、1500、1800W/cm² , short press the S key to select work time which could be 5、10、15、20s .

When the output light intensity is $2300\text{mW}/\text{cm}^2$, short press the S key to select the work time which could be 1、2、3s .

③ High power mode:M3 (only suitable for M-Cure 3、M-Cure 9) :

The default light intensity is $1800\text{mW}/\text{cm}^2$.

When the output light intensity is 1000、1500、1800W/cm² , short press the S key to select work time which could be 5、10、15、20s .

When the output light intensity is $2300\text{mW}/\text{cm}^2$, short press the S key to select the work time which could be 1、2、3s .

④ Fast curing mode (only suitable for M-Cure 3、M-Cure 8、M-Cure 9) :

The output light intensity can not be choosed, and it is $2300\text{mW}/\text{cm}^2$ with default setting.

Short press the S key to select the work time which could be 1、2、3s .

⑤ Soft mode (only suitable for M-Cure 8、M-Cure 9) :

The output light intensity can not be choosed, and it will gradually increase the output power up to $1200\text{mW}/\text{cm}^2$ with default setting.

Short press the S key to select the work time which could be 5、10、15、20s .

⑥ Pulse mode (only suitable for M-Cure 8、M-Cure 9) :

The intermittent output light intensity can not be choosed, and it is 1200mW/cm² with default setting.

Short press the S key to select the work time which could be 5、10、15、20s .

⑦ Ortho mode (only suitable for M-Cure 8、 M-Cure 9) :

The output light intensity can not be choosed, and it is 2000mW/cm² with default setting.

Short press the S key to select the work time which could be 3、 5s .

The curing light will work 3/5s with a 1s interval, and cycle for 10 times.



⑧ Caries checking mode (only suitable for M-Cure 3、 M-Cure 8、 M-Cure 9) :

The output light intensity can not be choosed,and it is 600 mW/cm² with default setting.

Short press the S key to select the work time which could be 5、10、15、20s .

When purple light irradiates caries or dental plaque, it will produce orange red fluorescence reaction to detect surface caries or dental plaque.

Enter the sleep status


When the device is in shut down state, press the switch key  accompanied by a ‘DI’ prompt tone. And then the  indicator lights up .The machine will automatically enter the sleep status.

Switching power mode

When the equipment is in the sleep status or working status, it can quickly cycle to the next working mode by a short press M key.


The light power and the curing time both can be set in M1、 M2、 M3. Only the curing time can be set in other work mode.

Notice:


Short press the S key to select the work time. And then press  to confirm the current setting.

When the work mode is in M1、 M2、 M3, it can enter the light power setting interface by a short press the M key. And then, it can choose the output power by short pressing the S key.

Start / stop working status


When the device is in the sleep status, it can start working status by a short time press .

In this case, the LED star to work under the selected mode. Then it counts down to 0 second to end the solidification.

When the device is in the working status, it can stop by a short time press  .

In this case, the device returns to sleep status.

Power off

In the case of sleep/working status, the device can shut down by a long time press  .

In the case of sleep status, the device also can automatically shut down by waiting 2min.



Attention

● At the end of a working cycle , the next working cycle can be started immediately by short pressing the button. If the main unit gets hot obviously, please turn off the device until the main unit becomes cool. Please don ' t make it continuously illuminate more than 10 times.


● When operating finish, please clean the top of the main unit with calico to avoid infecting the light intensity.


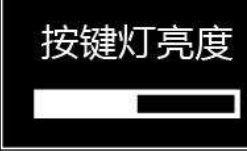



● When operating, put the disposable sleeve on the main unit, clip the notch of the light hood into the head of the top of main unit, and then clamp the light hood down on the main unit.

● Low power detect circuit is fixed inside of the main unit, when low power is detected, the battery level icon on main unit screen displays 0 grid power and shows a flashing status.

● The effective light intensity of this equipment is much more higher than Halogen Lamp, The solidified depth of the curing light composites resin for 10 seconds will not less than 4mm.

Advanced mode setting

When the device is under the shut down status/ sleep status , it can enter the advanced mode setting interface by pressing the S key and  at the same time.

Advanced setting function	Interface style	Function description
Dominant Hand		Set left and right habitual hands, When switching to the left-handed habit, the display interface will rotate 180°, which is convenient for the left-handed operator to observe the displayed content.
Key light brightness		Adjust the Key light brightness
Auto Power Off		The automatic shutdown time of the equipment can be set to 1、5、10、15min.
Beeper Volume		Adjust the volume, the volume can be set There are four classes.
Restore Default		<p>On/off factory default setting</p> <p>After restoring the factory settings, all parameters will be overwritten by the default parameters</p> <p>After the restoration is complete, the system will remind you that the setting is complete</p>

4 Cleaning, disinfection & maintenance

4.1 The cleaning of main unit, link hood are as follow.

Main unit can not be cleaned with clean flowing water. It only can be wiped with a soft cloth dipped with little alcohol.

After each use, check whether the dental composite material remains on the surface of the link hood to avoid affecting the service life of the link hood or the curing effect.

4.2 It is forbidden to use the following methods to disinfect the main unit and link hood:

- 4.2.1 Cook in the water or liquid solution;
- 4.2.2 Soak with iodine, alcohol or disinfectant;
- 4.2.3 Bake in an oven.

4.3 Maintenance instructions for rechargeable lithium battery

Please keep the battery in half charged status and store it in dry conditions if the battery is not used for a long period of time.

Be sure to use the matching original adapter to charge the battery. The recommended environmental temperature range is 0-40 °C. Battery performance will degrade if the environmental temperature range exceeds the above value.

4.4 Routine maintenance

4.4.1 Any maintenance of the equipment shall be carried out by professionals or authorized dealers designated by the equipment manufacturer.

4.4.2 Turn off the power switch when the equipment is not in use. The equipment shall be charged once a month for five minutes each time if the equipment is not used for a long time.

5 Troubleshooting

Fault	Possible cause	Solution
No indication, no response	1、 Battery out of power. 2、 Faulty of battery.	1、 Charge the device/Change a new battery. 2、 Change a new battery
Low light power	1、 Low power of battery. 2、 Resin residue on the top of the main unit.	1、 Charge the device/Change a new battery. 2、 Remove the resin.
Do not charge after connecting to power adapter	1、 The power supply was not well connected. 2、 Faulty of battery/adapter.	1、 Connect the adapter and Charging interface again. 2、 Replace the battery/adapter.
‘BLED’ shows on the screen	1、 The top of the main unit is not inserted or tightly inserted. 2、 Poor contact or damage of blue light bulb. 3、 Faulty of the top of main unit.	1、 Insert the top of the main unit tightly. 2、 Send to after service for repair. 3、 Send to after service for repair.
‘PLED ERROR’ shows on the screen	1、 The top of the main unit is not inserted or tightly inserted. 2、 Poor contact or damage of violet light bulb. 3、 Faulty of the top of main unit.	1、 Insert the top of the main unit tightly. 2、 Send to after service for repair. 3、 Send to after service for repair.
‘LOW POWER’ shows on the screen	Low power of battery	Charge the device/Change a new battery.

* If there are any unsolvable problems, please contact us.

6 Safety precautions

6.1 Please carefully read this Instruction Manual before first operation.

6.2 This device should be operated by professional and qualified dentist in qualified hospital or clinic. The use of the product must comply with the requirements of the relevant operating specifications and relevant regulations of the medical department. This product does not contain toxic or hazardous substances and it is discarded in accordance with the relevant laws and regulations on waste medical devices. Please deal with the replaced battery according to national regulation.

6.3 Prior to each use, place a new disposable sleeve over the curing light. The disposable sleeve is custom fitted to the curing light and keeps the surface of the curing light clean. The disposable sleeve helps prevent cross contamination.

6.4 Please note that the disposable sleeve must meet the requirements of relevant medical device regulation. In order to prevent cross-infection, it is forbidden to reuse the disposable sleeve.

6.5 During operation, the blue light should be aimed straightly at the composite resin to ensure the effect of solidification.

6.6 Do not look directly into the light output. Patient, clinician and assistants are always suggested wearing protectors (safety goggle, face shield) to avoid crossing infection. Please use the original light hood and follow the right installation ways to avoid the damage of LED light to the eyes. The light source can only aim at the dental resin. It is forbidden to use the curing light aim at patient's eyes, skin, oral mucosa or other similar human parts.

6.7 After a working cycle, operator can press the ON/OFF switch 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.

6.8 Only the original adapter could be used, because other brand adapters are likely to damage the circuit.

6.9 Do not carry out any repairs or modifications without authorization. In case of failure, please contact your local dealer and do not allow unauthorized personnel to repair.

6.10 Do not use damaged or defective instruments. Please check the equipment before each use. If there is any damage to the equipment, operator must stop use it.

6.11 When charging or using, do not touch the charging interface, battery and patient at the same time.

6.12 It is forbidden to turn on the working state during equipment

charging.

6.13 Keep the machine clean before and after operation.

6.14 Please turn off the power switch after each treatment.

6.15 As a professional manufacturer of medical instruments, we are only responsible for the safety on the following conditions:

1) The maintenance, repair and modification are made by the manufacturer or the authorized dealer.

2) The changed components are original of our company and operated correctly according to instruction manual.

6.16 The instrument has electromagnetic interference. Do not use around the electronic operation, at the same time have a strong electromagnetic interference environment should be careful to use the instrument.