Rocure

Curing Light
User Manual

Foshan Roson Medical Instruments Co.,Ltd.

To Customers

Thank you for choosing the Rocure Curing Light from Foshan Roson Medical Instruments Co.,Ltd.

Carefully read this manual in its entirety before using the product and retain it for future reference.

The symbols used throughout this manual are classified as follows for better comprehension of their meanings:

Alerts a hazardous situation which, if not avoided, will or could result in severe personal injury, death, or substantial product damage.

Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury, mechanical damage, performance degradation, or unexpected results.

Provides additional information to emphasize or supplement important points of the main text.

About our device

Rocure is a specialized device for clinical dentistry. Based on the principle of light radiation, it achieves two main functions: first, irradiating photosensitive resin to make it cure rapidly, supporting tooth restoration; second, utilizing the specific color reaction principle of violet light with dental plaque and caries to identify hidden dental plaque, detect early caries, and assist in the early discovery of oral diseases.

The product covers two core scenarios in clinical dentistry: first, the scenario of curing restorative materials, provided for healthcare personnel to irradiate and cure polymer-based dental restorative materials, meeting treatment needs such as dental defect filling and tooth restoration; second, the scenario of oral problem detection, which can be used clinically to examine the distribution of dental plaque in patients, and for preliminary screening of early caries lesions, assisting healthcare personnel in more comprehensively assessing oral health status.

Program Activation/Deactivation:

① Briefly press to activate the device program.

②Press and hold for 1 second to power off.

Program Activation/Mode Selection/Curing Time Selection:

① Briefly press to activate the device program.

② Press and hold for 1 second to select mode.

③ Briefly press to select curing time.

User Interface:

Standard Mode

Low-temperature curing Mode

Ramp Mode

High-Intensity Mode

Orthodontic Mode

Cure Check Mode

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1. Overview

1.1 Working Principle

Curing lights use a specific wavelength of blue light to activate photoinitiators in dental composites, resin cements, and bonding agents. These photoinitiators, upon exposure to the LED light, trigger a polymerization reaction in the dental materials. This process, commonly referred to as curing, transforms the liquid or gel-like dental materials into a solid and durable form, effectively bonding restorations to natural teeth.

1.2 Intended Use

This dental curing light is intended for clinical dental use to cure photosensitive materials in procedures such as caries filling, tooth defect restoration, denture bonding, and tooth whitening.

1.3 Structure and components

This is composed of a metal light guide, an operating hand-piece, a rechargeable battery, a power adapter, a charging base, and a light shield.

2. Technical Specification

2.1 Technical Parameters Table

Item	Specification
Dimensions L×W×H (mm)	244mm*30mm*28mm
Input Power	AC100-240V 50/60Hz 1.0A
Power supply	DC5V-1A 50Hz/60Hz 5W
Light intensity	500mW/cm^{2}-3000mW/cm^{2}
Light Source	1. 5W power blue LED 2. 1.5W power violet LED 3. Wavelength 385nm-515nm. Typical Peak Wavelength: 450nm
Applied Part	Metal Light guide
Irradiance within 385nm-515nm wavelength range	Shall be no less than 260mW/cm^{2}

Item	Specification
Irradiance within 200nm-385nm wavelength range	Shall be no greater than 200mW/cm²
Irradiance for wavelengths greater than 515nm	Shall be no greater than 100mW/cm²
Weight	145g
Mode and Time Setting	1. Standard Mode. Settable to 5s, 10s, 15s, 20s. 2. Low-temperature curing mode. Settable to 5s, 10s, 15s, 20s. 3. Ramp Mode. Settable to 5s, 10s, 15s, 20s. 4. High-Intensity Mode. Settable to 1s, 3s, 5s. 5. Orthodontic Mode. Settable to 3s x 5 cycles, 3s x 10 cycles. Each cycle outputs light for 3 seconds, with a 2-second interval between pulses. 6. Cure Check Mode. 60s.

2.2 Recommended Environmental Conditions

The device must be transported, stored, and operated in permissible environmental conditions, as stated below:

Item	Operating Condition	Storage and Transport Condition
Ambient temperature	5~40°C	-20°C~40°C
Relative humidity	30%~75%RH (non-condensing)	10%~93%RH (non-condensing)
Atmospheric pressure	80~106kPa	80~106kPa

WARNING	• **The product is not designed to be used in potentially explosive environments such as in close proximity to flammable liquids or gases or in oxygen-enriched atmospheres.**
WARNING	• **Do not install, use, or store the Curing Light in dusty and damp environments or areas of temperature extremes, or in direct sunlight.**
CAUTION	• **Do not allow any liquid to get inside this Curing Light. Water and moisture may cause short-circuit to the electronic components and lead to malfunctions.**

2.3 Equipment Safety Classification

a）Classification according to means of protection against electric shock: Class II equipment.

b）Classification according to the degree of protection against electric shock: Type B applied part.

c）Classification according to the degree of protection against ingress of water: Ordinary equipment, not waterproof.

d） Classification according to the mode of operation: Intermittent operation.

e）Classification regarding the degree of safety in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide: Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.

f）The applied part of this equipment is not defibrillation-proof, has no signal input/output parts, and is non-permanently installed equipment.

3. Install and uninstall way

When charging is needed：

a）Remove the charging dock, plug the power adapter into its power port, and connect the other end to the wall outlet. Then check if the power indicator light turns on.

b）After inspecting the surface of the metal light guide rod for damage or contamination, align it with the interface at the front end of the operating handle and gently insert it until a tight seal is achieved.

c）If a light shield is required during treatment, place it over the front end of the metal light guide rod to ensure secure installation and prevent detachment during therapy.

d）Insert the controller into the charging dock. Ensure proper contact. The charging indicator will light up, and charging will begin. Installation is complete.

e）To disassemble the device, simply reverse the steps described above.

When there is enough electricity：

Before using this equipment,users need to put disposable isolation sleeve which is supplied by our company on the metal light guide of Curing Light to avoid contact between the main unit or other components and the patient's skin or oral mucous and avoid cross infection.

NOTE	Once used, disposable isolation sleeve must be disposed of according to biomedical waste disposal procedures.

4. Operation

4.1 Mode Switching

Press and hold the M/T button for 1 second to select and enter the operational status from the following 6 modes. After selection, the corresponding mode interface is displayed.

a）Standard mode: The device defaults to Standard Mode upon first power-on. Press the I button briefly to activate the LED light.

b）Low-temperature curing mode: In Standard Mode, press and hold the M/T button for 1 second to switch to Low-temperature curing mode. Press the I button briefly to activate the LED light.

c）Ramp mode: In Low-temperature curing mode, press and hold the M/T button to switch to Ramp Mode. Press the I button briefly to activate the LED light. The light intensity gradually increases from 0 to 1200 mW/cm² (0~1200 mW/cm² in 5 seconds, maintains 1200 mW/cm² from 5s to 20s).

d）High-Intensity mode: In Ramp Mode, press and hold the M/T button for 1 second to switch to High-Intensity Mode. Press the I button briefly to activate the LED light.

e）Orthodontic mode: In High-Intensity Mode, press and hold the M/T button for 1 second to switch to Orthodontic Mode. Press the I button briefly to activate the LED light. Each cycle outputs light for 3 seconds with a 2-second interval between cycles.

f）Cure Check mode: In Orthodontic Mode, press and hold the M/T button for 1 second to switch to Cure Check Mode. Press the I button briefly to activate the LED light.

4.2 Working Time Switching

Briefly press the M/T button to switch between the available times.

a）Standard Mode: 5S, 10S, 15S, 20S.

b）Low-temperature curing Mode: 5S, 10S, 15S, 20S.

c）Ramp Mode: 5S, 10S, 15S, 20S.

d）High-Intensity Mode: 1S, 3S, 5S.

e）Orthodontic Mode: 5C, 10C.

f）Check Mode: 60S.

NOTE	Power On Method：Briefly press the M/T or ⏻ button to activate the device.
NOTE	During normal use, the output can be stopped and the work ended at any time before the set timer expires by pressing the ⏻ button.
WARNING	After one curing cycle ends, the next curing cycle can be started immediately by pressing the power button. If the handpiece is noticeably warm to the touch, stop operation. Allow the handpiece to cool for 5 minutes before resuming work. To prevent overheating of the light guide assembly, it is recommended that the number of consecutive curing cycles does not exceed 10.
NOTE	After use, if the transparent cover is contaminated with resin, wipe it clean with a lint-free cloth to avoid affecting the light intensity.
NOTE	The effective light intensity of this unit is many times higher than that of halogen dental curing lights. The depth of cure for light-cured composite resin is not less than 4mm after 10 seconds of irradiation.

5. Cleaning And Disinfection

a）Before using this equipment,users need to put disposable isolation sleeve which is supplied by our company on the light guide of Curing Light to avoid contact between the main unit or other components and the patient's skin or oral mucous and avoid cross infection. After use, remove the disposable isolation sleeve and dispose of it in accordance with applicable legal requirements in your country as well as the hygiene regulations of the hospital or clinic.

b）The accessory of the equipment should be cleaned by clean water or neutral sterilized liquid. Do not soak.

c）The recommended disinfection method is: wipe the surface twice with a neutral disinfectant, allowing it to act for 3 minutes each time.

d）Do not use highly volatile and diffluent solvent to clean this equipment which can cause the signs on the control panel to fade.

CAUTION	Please notice that this equipment is not allowed to carry out steam sterilization process otherwise it will cause damage.
NOTE	Cleaning and disinfection must be performed before initial use and after each use
WARNING	The disposable isolation sleeve purchased by the user should meet the requirements of medical device regulations.
WARNING	Disposable isolation sleeves are not allowed to be reused to prevent cross-infection.

6. Safety Precautions

a）This product is not a household appliance. It is only suitable for use in hospitals and dental clinics. The use of this product must comply with the relevant operational protocols and regulations of the healthcare department. The user must be a professionally trained and qualified dentist or technician. During use, the dentist, technician (dental assistant), and patient are advised to wear protective goggles or filters with blue light and ultraviolet filtering effects to avoid eye injury and cross-contamination.

b）During clinical use, the light source should directly irradiate the resin material to be cured. Avoid improper irradiation positioning, which may affect the curing effect.

c）It is recommended to use the original light shield provided by the manufacturer. Correctly install the light shield or wear effective protective goggles to prevent blue light, ultraviolet radiation, and thermal radiation from causing harm to the eyes.

d）Strictly prohibit inserting metal or any other conductor into the power input port of the main unit, as this may cause a short circuit and burn out the internal circuitry. When operating the device, place it in a location that allows for easy power disconnection.

e）This product does not contain toxic or hazardous substances. Dispose of it as waste according to the regulations concerning waste medical devices.

f）Our company is a professional manufacturer of medical devices. We guarantee the safety of the equipment only when maintenance, repairs, and modifications are performed by our company or authorized distributors of our company, when replacement parts are genuine parts from our company, and when the equipment is operated according to the user manual.

g）The front light guide emits optical radiation heat during light output. During prolonged or consecutive multiple light outputs, the temperature will exceed 43°C, with a maximum temperature of approximately 56°C. When irradiating and curing resin, this may cause patient discomfort, and in severe cases, may lead to overheating of dental tissues. Avoid prolonged or consecutive multiple uses.

h） Do not disassemble or replace device components without permission from our company. If the product malfunctions, please contact our company's after-sales service for disassembly and repair.

i）If the product reaches its expected service life or cannot function normally after repair, please dispose of it as scrap according to local requirements.

j）This device is powered by a built-in battery. Before use, please ensure the battery is sufficiently charged. If the battery level is low, please use the power adapter provided by our company for charging.

k）This device generates electromagnetic interference and may be susceptible to strong electromagnetic fields. During use, keep away from scenarios with strong electromagnetic interference and avoid stacking it with other electronic devices.

7. Contraindication

Patients with heart disease, pregnant women, and young children should use with caution; individuals allergic to blue or violet light irradiation should use with caution.

8. Troubleshooting

Fault Condition	Possible Cause	Solution
No indicator, no operation	Abnormal power input	1. Recheck the power input terminal. 2. Replace the main unit.
Insufficient light intensity	Resin residue on the front end	1. Clean the resin residue.
Does not charge when connected to the power adapter	1. Power adapter not properly plugged in. 2. Impurities on the charging base contact points. 3. Power adapter damaged or specifications do not match.	1. Unplug and reconnect. 2. Wipe the charging base contacts with alcohol. 3. Contact the local distributor or our company.
Shortened usage time after charging the battery	Reduced battery capacity	1. Contact the local distributor or our company.

Do not perform on-site repairs for faults other than those listed above. If the fault cannot be resolved, please contact the local distributor or our company.

9. Storage and transportation

9.1 Transport

a）During transport, avoid excessive impact and vibration. Handle with care and avoid placing the device upside down.
b）The product should not be transported together with hazardous materials.
c） During transport, protect the product from direct sunlight, rain, or snow.

9.2 Storage

a）Do not store the product together with toxic, corrosive, flammable, or explosive substances.
b）The product should be stored in an environment with a relative humidity of 10% ~ 93%, an atmospheric pressure of 80kPa ~106kPa, and a temperature of -20℃ ~ +40℃.

10. Packing List

Item No.	Description	Quantity / Unit
1	Metal Light Guide	1 piece
2	Main Unit	1 piece
3	Contact Charging Base	1 piece
4	Power Adapter	1 piece
5	Light Shield	1 piece
6	Disposable Transparent Film	1 box
7	User Manual	1 copy

NOTE	Verify that all items listed on the Packing List are contained in your order. If any item appears to be missing, contact your local distributor.

11. Symbol instruction

Symbol	Explanation
	Fragile, handle with care
	Keep dry
	Temperature limit
	Humidity limitation
	Atmospheric pressure limitation
	Keep away from direct sunlight
SN	Serial number
	Caution! Consult accompanying documents
ROSON	Roson trademark
	Manufacturer
	Follow instructions for use
	This symbol indicates that this device must be sent to separate collection facilities for recovery and recycling at the end of its service life
MD	Medical device
	Type B Applied Part
	Alternating current
	Direct current
	CLASS II equipment
 20XX-XX-XX	Date of manufacture

12. EMC-Declaration of conformity

12.1 Important Information Regarding Electromagnetic Compatibility (EMC)

WARNING	Use of accessories and cables other than those specified or provided by the manufacturer of this equipment could result in increased electromagnetic emissions or decreased electromagnetic immunity of this equipment and result in improper operation.
WARNING	Use of this equipment adjacent to or stacked with other equipment should be avoided because it could result in improper operation. If such use is necessary, this equipment and the other equipment should be observed to verify that they are operating normally.
WARNING	Portable RF communications equipment (including peripherals such as antenna cables and external antennas) should be used no closer than 30cm (12 inches) to any part of the Rocure system, including cables specified by the manufacturer. Otherwise, degradation of the performance of this equipment could result.

12.2 Guidance and Manufacturer's Declaration – Electromagnetic Emissions

Rocure is suitable for use in professional healthcare facility environment and it has meets the following standard's emission requirements.

Phenomenon	Home healthcare environment
Conducted and radiated RF emissions	CISPR 11, Group 1, Class B
Harmonic distortion	IEC 61000-3-2, Class A
Voltage fluctuations and flicker	IEC 61000-3-3

12.3 Guidance and Manufacturer's Declaration – Electromagnetic Immunity

Rocure is suitable for use in professional healthcare facility environment and it has meets the following immunity test levels. Higher immunity levels may cause the Rocure's essential performance lost or degraded.

Phenomenon	Basic EMC standard or test method	Home healthcare environment
Electrostatic discharge	IEC 61000-4-2	+/- 8 kV contact +/- 2 kV, +/- 4 kV, +/- 8 kV, +/- 15 kV air
Radiated RF EM fields	IEC 61000-4-3	10V/m 80MHz-2.7GHz 80%AM at 1kHz
Proximity fields from RF wireless communications equipment	IEC 61000-4-3	See the RF wireless communication equipment table in "Recommended minimum separation distances".
Rated power frequency magnetic fields	IEC 61000-4-8	30A/m; 50 Hz or 60Hz
Electric fast transients bursts	IEC 61000-4-4	±2kV 100kHz repetition frequency
Surges	IEC 61000-4-5	Line to line: ±0.5kV, ±1kV
Conducted disturbances induced by RF fields	IEC 61000-4-6	3 V in 0.15 MHz - 80 MHz 6 V in ISM and/or amateur radio bands between 0.15 MHz and 80 MHz 80 % AM at 1kHz
Voltage dips	IEC 61000-4-11	0% U_T: 0.5 cycle at 0°, 45°, 90°, 135°, 180°, 225°, 270°, and 315°
		0% U_T: 1 cycle and 70% U_T: 25/30 cycles sine phase at 0°
Voltage interruptions	IEC 61000-4-11	0% U_T: 250/300 cycle
U_T: rated voltage(s); E.g. 25/30 cycles means 25 cycles at 50Hz or 30 cycles at 60Hz		

12.4 Recommended Separation Distances Between Portable and Mobile RF Communications Equipment and the Dental Curing Light

Rocure is intended for use in an electromagnetic environment in which radiated RF disturbances are controlled. Based on the maximum rated output power of the communications equipment, the purchaser or user can prevent electromagnetic interference by maintaining the minimum distance between portable and mobile RF communications equipment (transmitters) and Rocure, as recommended below.

Rated Maximum Output Power of Transmitter (W)	Separation Distance Corresponding to Transmitter Frequency (m)		
	150 kHz~80MHz d =	80 MHz~800MHz d =	800 MHz~2.5GHz d =
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

Note 1: At 80 MHz and 800 MHz, the formula 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.

The field strength from fixed transmitters, such as the 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 at the location where the dental curing light is used exceeds the applicable RF compliance level specified above, the dental curing light should be observed to verify normal operation. If abnormal performance is observed, additional measures may be necessary, such as reorienting or relocating the dental curing light. Over the frequency range 150 kHz to 80 MHz, the field strength should be less than 3 V/m.

13. Service Information

13.1 Service Life

Under normal operating conditions, the expected service life of the Rocure is 5 years.

NOTE	For the specific production date, please refer to the product label.

13.2 Daily Inspection

The Rocure doesn't require any special maintenance other than daily inspection, cleaning, and disinfection.

Item	Check
Rocure	Visual inspection for any physical damage and wear (e.g. scratches, discoloration, corrosion) to the curing light housing or cable.
Metal light guide	Check the curing tip mirror to ensure it is securely fixed and free from any dirt, damage, or scratches.
	Check the surface of the curing tip to ensure it is free from rough areas, sharp edges, or protrusions.
Labels	Check that all visible labels are clear and intact.

13.3 Repair

In the event of product failure that cannot be removed, please contact the sales representative or dealer, and provide the following information as per the product label:

- Product model: Rocure
- SN: Serial number on the product label
- Symptoms: Describe the device failure as detailed as possible

13.4 Contact Information

Should you have additional queries or need further assistance, feel free to get in touch with Roson using the contact details below:

- Address: No.9 Henggui Mid-Road, Lianhe Industrial Zone, Luocun, Shishan Town, Nanhai District, Foshan City, Guangdong Province, China.
- Tel: 0086-757-86407037
- Email: sales001@fsroson.com