

Instructions for Use

GCP Dental CarboLED CL-02

LED ThermoCURE light
product no. 108.010



Only for use by dental professionals.
Read this operation manual carefully before installation or operation.

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ENGLISH

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Section 1 - Introduction

GCP CarboLED CL-02

LED thermoCURE light product no. 108.010

The CarboLED CL-02 consists of a universal light for curing all types of modern restorative materials, which is something quite new. A light that meets the needs of the modern dental practice. It is ideal for glass ionomer and Glass Carbomer™ products as well as for composites. Besides broad-spectrum blue light activation of composite initiators, this light is also perfectly suitable for heat curing (thermocure) of glass materials. The innovative light (≥ 1500 mW/cm²) was developed by the same technicians who created the successful GCP Glass Carbomer™ Tech products.

GCP Glass Carbomer™ restoratives cure faster with this light due to the specifically directed high energy. The result is a complete, safe heat absorption that is converted through GCP Fill, Seal, Crown and Bridge cement to give exceptionally strong and lasting permanent restorations. The casing of the CarboLED CL-02 is milled from a solid, silver-enriched aluminium alloy. This, combined with a transparent light guide, ensures that the electronics – including the light – are never thermally overloaded. This extends the light's life significantly. The light is easy to operate and has an attractive, ergonomic design.

With this innovative product and the recently introduced universal capsule mixer, GCP Dental sets a new standard in terms of top quality, effectiveness, design and ease of use.

Key features:

- High light intensity – for optimal thermo-curing of Glass Carbomer™ and glass ionomer product ≥ 1500 mW/cm²
- Broad-spectrum blue light polymerisation of all light curing resin restoratives.
- Ergonomic "90 degree" angle light guide for optimal posterior access
- Setting up to 30 seconds per curing cycle
- Cordless
- High quality aluminium housing eliminates need for a cooling fan
- Simple operation
- Long life – no light replacement required; extensively tested on durability
- Auto-snooze after 30 seconds of no use
- Battery level test and display function
- LED temperature High cut-out function (displays HH)
- Battery Low cut-out function (displays bL)
- LED cooling through interconnected metal body mass to increase LED lifetime.
- During thermo-curing cycle, the time setting function and the battery testing function are disabled until the curing cycle is completed.

Section 2 – Safety Precautions

- Before operation, read the entire user instructions carefully! In view of the different kinds of composites, we advise you to follow the instructions of the appropriate suppliers/manufacturers or institution whose instructions are based on experience. If in doubt, please contact or consult the website of the composite supplier/manufacturer.
- Do not look directly at the light emitted from the curing light. Always use the curing light with orange protection sleeve and/or protection shield. Prevent excessive exposure of the eyes to the blue light. Suitable protective eyewear blocks all energy below 550 nm.

- This LED light produces high-energy output. Do not shine light directly on or toward unprotected skin or gingiva.
- People who have a history of photosensitive reaction or who are using photosensitive drugs should not be exposed to light from this curing light.
- Aim the light directly at the material that is to be cured in clinical use.
- This device is not suitable for use in the presence of flammable anaesthetic mixture or an oxidizer containing oxygen or nitrous oxide.
- Check your local AC power supply voltage to ensure it meets required specifications before use
- Use the original power charger. Any other charger may result in damage to the battery or electrical circuits, or even the entire unit.
- There is danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent battery type as recommended by GCP Dental.
- Warning: avoid exposing battery to extreme temperatures or fire which can cause risk of explosion
- Repair or maintenance of this device should only be conducted by the GCP Dental or authorized service partners, using original replacement parts.
- Removal of original components and/or replacement with non-original components invalidates warranty.
- Do not use the device for any purposes other than its intended use of thermocuring and light curing of dental restoratives.
- Always store the curing light in a dry and clean place.

DISCLAIMER:

1. The manufacturer shall not assume any responsibility if any malfunction, damage, or accident resulting in bodily injury is caused by improper removal, modification, maintenance, or repair of the product conducted by unauthorized persons.
2. The manufacturer shall not assume any responsibility if any malfunction, damage, or accident resulting in bodily injury is caused by the use of this product in conjunction with other regulated products.
3. The manufacturer shall not assume any responsibility if any malfunction, damage, or accident resulting in bodily injury is caused by improper removal, modification, maintenance, or repair of the product with components not supplied by the manufacturer.
4. The manufacturer shall not assume any responsibility if any malfunction, damage, or accident of bodily harm is caused by improper operation that is non-compliant with the manual instructions.
5. The manufacturer shall not assume any responsibility if any malfunction, damage, or accident resulting in bodily harm is caused by inappropriate modifications to the power supply, installation environment, or any other safety-regulated operating conditions as specified in this manual.
6. The manufacturer shall not assume any responsibility if any malfunction, damage, or accident resulting in bodily harm is caused by natural disasters, environmental causes, or acts of God.

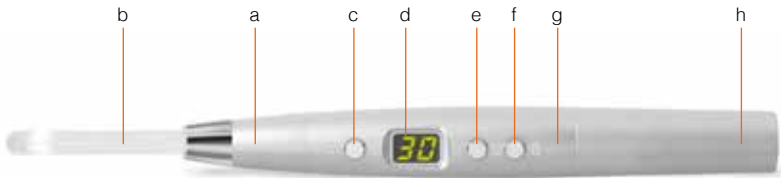
Section 3 – Components

Box Contents:

- a) 1x GCP CarboLED handpiece with replaceable battery (two parts)
- b) 1x light guide
- c) 1x eye-protection light guide sleeve
- d) 1x eye-protection shield
- e) 1x charging base
- f) 1x power charger 110-240 V with international pin assemblies.
- g) 1x user instructions including warranty registration form
- h) 1x GCP Dental CarboLED CL-02 QC Checklist

Description of handpiece

- a) LED light
- b) Light guide
- c) "ON / OFF" power button
- d) Display panel
- e) "TIME" adjustment button
- f) "BATTERY LEVEL" display button
- g) Handpiece
- h) Replaceable Li-Ion battery



Power charger
110-240V AC – 5V DC



Charging base



Section 4 – Installation

Please carefully follow the instructions below to ensure proper functioning of the device.



Take the lower part of the handpiece, including the replaceable battery, and screw it clockwise onto the upper part of the handpiece. Tighten both pieces firmly. Each time the battery has been disconnected, all user settings will revert to the factory settings.

Insert the light guide carefully in the handpiece while holding it at the metal base. Make sure it is totally inserted until the base of the light guide is completely matched with the handpiece. Once installed, it can be safely rotated. To remove it, pull it straight outwards. Notice: The light guide is made of glass; it can easily be damaged or broken. Handle with care.



Verify that the power charger has the right pin assembly installed to fit your local mains socket. Change the pin assembly if needed by pushing the square button on the pin assembly, sliding out the current pin assembly and sliding in the pin assembly that matches your socket.

Insert the charger plug into the power jack of the charging base (marked 5V DC). Notice: charging base should be connected securely with the power charger.





Apply the eye protection sleeve over the light guide.

Apply the eye protection shield over the light guide onto the front of the handpiece.



Insert the handpiece into the charging base.

Notice: The light guide is made of glass; it can easily be damaged or broken. Handle with care.

Section 5 – Preparation for Use

Before first use

Insert handpiece into charging base. Check that it is an easy fit. Connect the power charger to an electrical outlet. Leave the handpiece for at least three hours to fully charge the battery before the first use, in order to ensure maximum battery life.

The light guide and eye protection shield are provided in a non-sterile packaging and must be sterilized before being used on a patient!

Charging the battery

When the handpiece is in the charging base and the power charger is connected to the electrical outlet, the batteries in the handpiece will charge. Whilst charging, a red light will be shown on the charging base. Once the battery is fully charged the light will turn green. You can now take the light from the charging base. However, it is recommended to leave the light on the connected charging base as much as practicable to maintain the maximum energy reserve.

In case of low battery, the display shows 'bL'. Charge the battery for at least three hours to obtain a full charge.



The battery charge level can be displayed using the "BATTERY LEVEL" button. Three lines represent ample power reserve, two lines indicate a limited power reserve, and one line means that only a few curing cycles are remaining and recharging of the battery is required as soon as practicable.



Section 6 – Method of Use

General usage

- Press the 'ON/OFF' button briefly. The LED display will turn on.
- Press the 'TIME' button repeatedly to set the cycle time. For thermocuring GCP material, the time is to be set to a 30 sec. cycle.
- Refer to the user instructions of GCP Dental Glass Fill, Glass Seal, Glass Crown and Bridge cement for curing time appropriate for the material.
- Refer to the user instructions of non GCP Dental products for curing advice.
- Press the 'ON / OFF' button briefly to start the curing cycle.
- For ease of use, the last program selected will be stored and automatically used next time the device is used.
- When curing Glass based products like GCP Glass Fill & Seal, hold the light as close as possible (0-1 mm), so-called "touch down", to the surface of material for optimal thermocuring.

Warning: Avoid directing the light to skin or gingiva.

- Because of the huge number of different composites and resin based derivatives, we advise the user to follow the instructions of the appropriate suppliers/manufacturers or institution. These instructions are based on experience and testing of the relevant material. If in doubt, please contact your dental material supplier/manufacturer.



Display panel descriptions



0 – 30: Number of seconds remaining in the curing cycle



HH: Overheating – device will shut down. Restart after cooling down.



Low Battery – Recharge the battery.

Battery status



Ample power reserve



Less than 10 cycles remaining



A few cycles remaining

Note

Preferably place the handpiece back into the charging base after each use.

The unit will automatically go into sleep mode after 30 seconds of idle time to preserve battery power.

WARNING

Do not look directly into the light.

Use the supplied protective devices, i.e. the eye protection light guide sleeve and/or eye protection shield to prevent excessive exposure of the eyes to the blue light.

Section 7 – Handling after Use

After you have finished with a patient:

- Pull the light guide out of the handpiece gently, clean and sterilize at 121 °C or 250 °F, 1060 hPa for 30 minutes using appropriate infection control protocols before replacing it back into the handpiece
- Place the handpiece in the charging base for maintaining maximum power reserve.
- Please note that the use of disposable sleeves to avoid the need for sterilisation affects the output power and therefore the effectiveness of the device. To minimise loss of energy transfer ensure the sleeve is pulled tightly onto the light guide and no air gap exists at the tip.

After you have finished working with the device:

- Wait until the unit automatically goes into sleep mode after 30 seconds of idle time.
- Pull the light guide out of the handpiece gently, clean and sterilize at 121 °C or 250 °F, 1060 hPa for 30 minutes and put it back in its original packaging for safe storage.

Section 8 – Maintenance

- This unit must not be opened by the user except for replacing the battery with an original replacement unit as supplied by the GCP Dental as described in section 4.
- Only use original GCP spare parts for servicing and repair of the product. Do not open the CarboLED unit or tamper with the electronics.
- If the device will not be used for an extended period, the unit should be cleaned, charged fully followed by one 30 s cycle discharge, and stored in the original packaging.
- Make sure that no materials become stuck to the surface of the light guide. If materials do stick to the light guide, remove them immediately with a soft cloth.
- The light guide must be kept clean to guarantee optimal light output and subsequent thermal curing performance.
- The light guide and eye protectors should be cleaned and sterilized after each use. They can be safely autoclaved at 121 °C or 250 °F, 1060 hPa for 30 minutes.
- Clean any dirt or stains from the surface of the control panel or handpiece, with a damp (but not wet) cloth. For obstinate stains, please use a neutral cleansing agent such as 70% isopropyl alcohol.

Section 9 – Troubleshooting

Problem: *Restorative material has not cured (hard) enough*

- Solution:**
- 1 Ensure that the light guide is firmly inserted against/into the thermocuring handpiece.
 - 2 Check the user instructions of the restorative for appropriate curing time
 - 3 Hold light closer, apply the so-called “touch-down” technique (between 0 – 1 mm) to glass restoratives to ensure effective thermal curing
 - 4 Repeat curing process / extend curing process time where needed
 - 5 Check that the light intensity is high enough for curing. In case of doubt, contact your GCP authorised distributor/ representative

Problem: *While the handpiece is placed in the charging base, the charging indicator is not illuminated.*

- Solution:** Check whether the handpiece is connected securely to the charging base. Reconnect the handpiece with the charging base, making sure that the connection is secure.

Problem: *The unit cannot be turned on and the LCD screen does not work*

- Solution:**
- 1 Possible cause: low battery.
Charge with power charger for a few minutes, then turn on the unit again to check. Fully charge the battery for three hours to solve.
 - 2 Possible cause: power button. Please press the power button for an extended period. Please check if the power button can be depressed.

Problem: *Curing time cannot be adjusted*

- Solution:**
- 1 Check that function buttons are in good order
(if the buttons are not in good order, kindly contact your local GCP distributor/ representative).
 - 2 Low battery power, charge unit.

Problem: *The unit cannot be charged and the charging indicator on the charging base does not show charging (red) state*

Solution: 1 Check if the power cable is connected to the charging base
2 Check if the charging base is connected with handpiece properly.

Problem: *Continuous beeping of the handpiece or charging base light flickers when handpiece is inserted.*

Solution: Handpiece and battery connection is faulty. Remove the battery, clean and reinstall into the handpiece.

Problem: *Red signal on charging base when empty*

Solution: There may be debris or moisture in the base. Clean out and remove any objects from the base.

Section 10 – Technical Data

Product model: GCP CarboLED CL-02

Unit

LED light	5 W
Output power:	≥ 1500 mW/cm ²
Output wavelength range:	420 – 490 nm (peaks at 455-465 nanometres)
Handpiece dimensions	175 mm x Ø 23,5 mm
Battery specifications	3.6 V, 2200 mAh (li-ion rechargeable battery)
Charging base dimensions	43 mm x Ø 60 mm
Charging base weight	185 g
Adapter input voltage:	AC100 ~ 240V 50Hz/60Hz
Adapter power output	5V 2A D.C.
System operational Conditions	Temperature: 15 °C to 35 °C (77 °F~95 °F) Humidity: 15% to 95% @ 40 °C, noncondensing Atmospheric Pressure: 700-1060 hPa

Section 11 – Storage & Transportation

Ambient temperature:	-20 °C to 65 °C (-4 °F~149 °F)
Relative humidity range:	15% to 95% @ 40 °C, noncondensing
Atmospheric pressure:	700 hPa ~ 1060 hPa

Section 12 - Disposal

The GCP Dental CarboLED is designed to serve you for many years. However, it is inevitable that disposal will be necessary at the end of its lifetime. Regulations require that you dispose of waste electrical equipment separately, to enable recycling and protection of the environment against hazardous materials that may be contained in such equipment. Consult your national or local regulations for safe disposal.

Section 13 - Warranty period, conditions, and registration

WARRANTY PERIOD

The warranty period is limited to one year after date of purchase as stipulated in the Warranty Conditions, provided Warranty Registration has taken place as described under WARRANTY REGISTRATION.

WARRANTY CONDITIONS

WARRANTY COVERAGE

GCP Dental's warranty obligations are limited to the terms set forth below: GCP Dental, as defined below, warrants this GCP Dental-branded hardware product against defects in materials and workmanship under normal use for a period of ONE (1) YEAR from the date of purchase by the original end-user purchaser ("Warranty Period") if properly registered as in Warranty Registration, otherwise for a period of ONE (1) YEAR from the date the product was shipped to the distributor or end user from GCP Dental's Warehouse. If a hardware defect arises and a valid claim is received within the Warranty Period, at its option, GCP Dental will either (1) repair the hardware defect at no charge, using new or refurbished replacement parts, or (2) exchange the product with a product that is new or which has been manufactured from new or serviceable used parts and is at least functionally equivalent to the original product. GCP Dental may request that you replace defective parts with new or refurbished user-installable parts that GCP Dental provides in fulfillment of its warranty obligation. A replacement product or part, including a user installable part that has been installed in accordance with instructions provided by GCP Dental, assumes the remaining warranty of the original product or ninety (90) days from the date of replacement or repair, whichever provides longer coverage for you. When a product or part is exchanged, any replacement item becomes your property and the replaced item becomes GCP Dental's property. Parts provided by GCP Dental in fulfillment of its warranty obligation must be used in products for which warranty service is claimed. When a refund is given, the product for which the refund is provided must be returned to GCP Dental and becomes GCP Dental's property.

EXCLUSIONS AND LIMITATIONS

This Limited Warranty applies only to products manufactured by or for GCP Dental that can be identified by the "GCP Dental" trade mark, trade name or logo affixed to them. The Limited Warranty does not apply to any non-GCP Dental products, even if packaged or sold with GCP Dental products. Manufacturers or suppliers, other than GCP Dental, may provide their own warranties to the end user purchaser, but GCP Dental, in so far as permitted by law, provides their products "as is".

GCP Dental does not warrant that the operation of the product will be uninterrupted or error-free. GCP Dental is not responsible for damage arising from failure to follow instructions relating to the product's use.

No claim under the guarantee will be able to exceed the amount invoiced for what is supplied at any time.

This warranty does not apply: (a) to damage caused by use with non-GCP Dental products; (b) to damage caused by accident, abuse, misuse, flood, fire, earthquake or other external causes; (c) to damage caused by operating the product outside the permitted or intended uses described by GCP Dental; (d) to damage caused by service (including upgrades and expansions) performed by anyone who is not a representative of GCP Dental or an GCP Dental Authorized Distributor; (e) to a product or part that has been modified to significantly alter functionality or capability without the written permission of GCP Dental; (f) to consumable parts, such as batteries, unless damage has occurred due to a defect in materials or workmanship; or (g) if any GCP Dental serial number has been removed or defaced.

Action instituted by a buyer with regard to his/her guarantee and/or a complaint will not suspend the obligation to pay.

To the extent permitted by law, this warranty and remedies set forth above are exclusive and in lieu of all other warranties, remedies and conditions, whether oral or written, statutory, expressed or implied. As permitted by applicable law, GCP Dental specifically disclaims any and all statutory or implied warranties, including, without limitation, warranties of merchantability, fitness for a particular purpose and warranties against hidden or latent defects. If GCP Dental cannot lawfully disclaim statutory or implied warranties, then to the extent permitted by law, all such warranties shall be limited in duration to the duration of this express warranty and to repair or replacement service as determined by GCP Dental in its sole discretion.

No GCP Dental Authorized Distributor, agent, or employee is authorized to make any modification, extension or addition to this warranty.

Except as provided in this warranty and to the extent permitted by law, GCP Dental is not responsible for direct, special, incidental or consequential damages resulting from any breach of warranty or condition, or under any other legal theory, including but not limited to loss of use; loss of revenue; loss of actual or anticipated profits (including loss of profits on contracts); loss of the use of money; loss of anticipated savings; loss of business; loss of opportunity; loss of goodwill; loss of reputation; loss of, damage to or corruption of data; or any indirect or consequential loss or damage howsoever caused including the replacement of equipment and property. The foregoing limitation shall not apply to death or personal injury claims.

WARRANTY REGISTRATION

Please find below the Warranty Registration Form for your CarboLED light. For **correct registration** of your warranty, it is **necessary** that you fill in this form completely and return it with a copy of your purchase invoice within two weeks of receipt.

Only after receipt of the above documents can GCP Dental include the device in the warranty register. The warranty period will be one year after date of purchase, as documented on the invoice and registration form.

Failure to do so will result in a warranty period expiring one year after the machine was shipped from GCP Dental's Warehouse to its authorised distributor.

WARRANTY REGISTRATION FORM

Product : _____

Model : _____

Serial number : _____

Date of Purchase : _____

Name : _____

Address : _____

E-mail : _____ phone: _____

Name of Distributor : _____

Authorized Distributor : _____

Stamp and Signature:

Send warranty registration to warranty@GCP-Dental.com or register warranty on www.GCP-Dental.com

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