

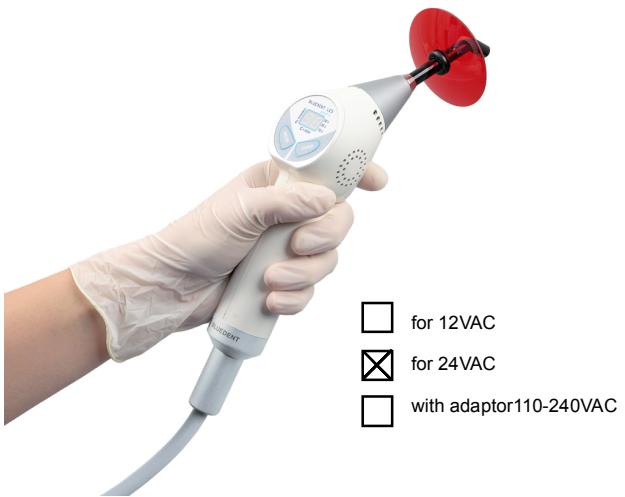
OPERATIONS GUIDE

**BLUEDENT LED SMART**  
cable type LED curing light

## OPERATIONS GUIDE

# BLUEDENT LED SMART

## cable type LED curing light



ATTENTION! Before installation and starting work with the unit, carefully read these guide!



### CONTENTS:

- I. UNIT DESCRIPTION AND FUNCTION
- II. TECHNICAL DATA
- III. ACCESSORIES AND SPARES
- IV. SAFETY PRECAUTIONS
- V. PREPARATION AND SEQUENCE OF OPERATION
- VI. LOW VOLTAGE AND OVERHEATING PROTECTION
- VII. ROUTINE CARE AND MAINTENANCE
- VIII. WARRANTY CONDITIONS
- IX. SERVICE DATA
- X. BLUEDENT LED SMART DATA

### I. UNIT DESCRIPTION AND FUNCTION

LED curing light BLUEDENT LED SMART is a light source for intraoral polymerization of dental materials. The unit uses LED (Light Emitting Diode) module as the light source. The emitted light is in the wavelength range 430-490 nm (the relevant range for camphor quinone containing products).

### II. TECHNICAL DATA

- 1. Operating voltage -12 or 24V ( $\pm 10\%$ )/ 50-60Hz or with adaptor Input-100-240VAC/ Output 5VDC-see page 2
- 2. Power consumption - 0,8-0,055Afor 24VAC and 2,0 A DC for adaptor
- 3. Dimensions:
  - Handpiece-diameter - 32 mm
  - length (with lightguide) - 196 mm
- 4. Weight:Total:350g
- Handpiece - 220 g
- 5. Light intensity - 800-1200 mW/sq.cm.
- 6. Emitting time - 10 - 20 - 30 sec. for curing and / 1-9 min. / $\pm 5\%$ / for bleaching;
- 7. Emitted light - blue, 430 - 490 nm
- 8. Light source - LED module
- 9. Curing modes - LONG, RAMP, FAST, PULSE.
- 10. Audible signal every 10 sec. / 1 min.
- 11. Possibility for start and stop of Emitting handpiece at any moment.
- 12. Working mode (1 min. / 10 min.)

### III. ACCESSORIES AND SPARES

- 1. Stand for fixing to dental unit - 1 pce.
- 2. Handpiece with cable for power supply - 1 pc.
- 3. Lightguide - 1 pc.
- 4. Protective shield - 1 pc.
- 5. Packing box - 1pc.
- 6. Bleaching lightguide-option
- 7. Operations guide - 1 pc.

### IV. SAFETY PRECAUTIONS

As with all technical devices, the proper function and safe operation of this unit depend on the user's compliance with the standard safety procedures as well as the specific safety recommendations described in this Operations guide.

- 1. The unit must be used in strict accordance with the Operations guide. The manufacturer accepts no liability for any damage resulting from the use of this unit for any other purposes.
- 2. Before start-up of the unit make sure that the operating voltage is 24VAC. Operation of the unit at a different voltage may damage the unit. For adaptor version need to use mains voltage 100-240VAC. Electrical safety is ensured by Protection class II against electrical current damages according to EN 60601-1. Use of "Shuko" plug or unit's grounding is not necessary.
- BLUEDENT LED SMART should be operated in indoor premises, in the following conditions:
  - temperature +10° 4 +40° C;
  - relative air humidity : 30 4 75%;
  - atm. pressure 700 4 1060 hPa;
  - absence of chemically active or flammable substances.
- 3. Irradiation of the eyes bears certain risk for their damage. Therefore the light must not be directed toward the eyes! Exposure must be restricted to the working area. Use of protection glasses and/or protection shield that blocks effectively the blue spectral range is highly recommended!



- ATTENTION!** The emitted light is in the wavelength range 430-490 nanometers.  
During work use protection goggles and/or protection shield!
4. The unit can be used only doctor's advice by or in persons with heart pacemakers implant; persons with photobiological reactions; persons currently taking photosensitive medication; persons with cataract surgery; persons with retinal diseases, etc.
  5. Solvents, flammable liquids and powerful heat sources must not be kept near the unit as exposure to one of these factors may damage the plastic parts of the unit.
  6. Cleaning agents should not enter the unit as this may short-circuit the unit or cause potentially dangerous malfunction.
  7. Only factory-authorized technicians are authorized to open and repair the unit.
  8. Only original BLUEDENT LED SMART spare parts should be used to replace defective parts. The unit warranty does not cover any damage resulting from the use on non-original replacement parts. The unit or any of its parts should not be disassembled while it is connected to the mains!
  9. Before each patient the lightguide should be sterilized or disinfected by disinfecting agent.
  10. FRAGILE! Be extremely careful during transportation, storage and handling of the unit!

#### V. PREPARATION AND SEQUENCE OF OPERATION

BLUEDENT LED SMART is designed for use as a build in unit.

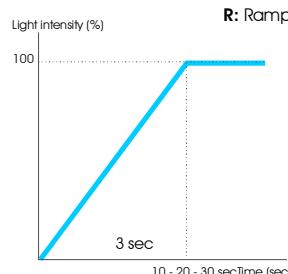
1. Take the curing light BLUEDENT LED SMART out from the packing.
- Attention!* The unit should be placed at least 1 meter away from any heat source.
2. Autoclave the lightguide prior to first use, fix the protective filter to it and mount the assembly into the front part of the handpiece.
3. Connect the power adapter to the mains 100-240VAC or to 24VAC -dental unit power supply
4. BLUEDENT LED SMART is equipped with **4 curing modes** that guarantee full and fast hardening of the restorative material. Select the curing mode by pressing the button MODE on the digital panel of the handpiece. Press repeatedly until the desired curing mode is selected:

**R - RAMP**

**L - LONG**

**F - FAST**

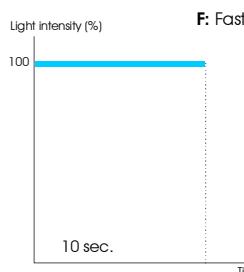
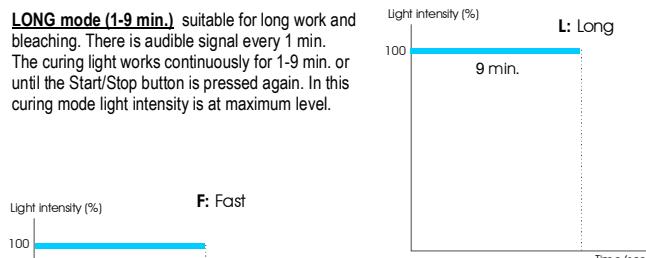
**P - PULSE**



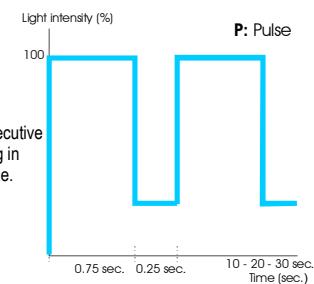
**RAMP mode (10 - 20 - 30 sec.)** - During the first 3 sec. light intensity slowly increases from 0% to 100% of the light intensity (soft start) to avoid stress in the restorative material.

4

**LONG mode (1-9 min.)** suitable for long work and bleaching. There is audible signal every 1 min. The curing light works continuously for 1-9 min. or until the Start/Stop button is pressed again. In this curing mode light intensity is at maximum level.



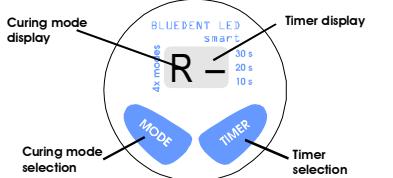
**FAST mode (10-20-30 sec.)** - Emitted light has highest intensity - 100% of the light intensity to achieve full hardening of the photoccomposite.



**PULSE mode (10 - 20 - 30 sec.)** - There are consecutive light emitting and pause that help to avoid shrinking in restorative material without extending exposure time.

Select exposure time by pressing the button "TIMER" repeatedly. The horizontal line shows selected time - 10, 20 or 30 sec.

(In this example the display shows RAMP curing mode with 20 sec. timer.)



#### VI. LOW VOLTAGE AND OVERHEATING PROTECTION

BLUEDENT LED SMART is equipped with system for LOW 24V voltage and overheating control. If the temperature of the LED source reaches 50 degrees C (122 degrees F), the countdown timer blinks and after that the display shows "Oh" (Overheating). After the exposure cycle is completed, the curing light goes off. In this case place the handpiece in the stand and as soon as it cools down to 40 degrees C (104 degrees F), the work can be continued.

5

## VII. ROUTINE CARE AND MAINTENANCE

1. Examining of lightguide: Every day the lightguide tip should be examined for:
  - stuck restorative material (it should be removed very carefully with blunt non-metal object);
  - mechanical damages on the lightguide.The above actions should be done to prevent decrease of light intensity.  
If none of the above improves light intensity, the unit should be checked in the manufacturer's service.
2. Cleaning of the unit: For disinfection of the unit, spray the disinfection agent onto a piece of soft cloth / cotton and clean the cordless handpiece and charging station. Do not use abrasives or solvents as these may damage the plastic parts of the unit!

## IX. SYMBOLS



Manufacturer  
BG LIGHT LTD, 155 Vasil Aprilov Blvd., 4027 Plovdiv, Bulgaria



Pursuant to Directive 2002/96/EC, this symbol shows that the product must not be disposed of as urban waste at the end of its operating life.



Pay attention to the instructions accompanied by this symbol.



Fragile!



Product with CE mark.



Applied part type B.



The device is equipped with double electric insulation (Class II)

$\Omega$	Ohm (electric resistance unit)
s	Second (time unit)
W	Watt (power unit)
Hz	Hertz (frequency unit)
mm	Milimeter (length unit)
A	Amper (electric current unit)
V	Volt (electric voltage unit)
Pa	Pascal (atmosphere pressure unit)
$^{\circ}$ C	Degrees Centigrade (temperature unit)
g	Gram (weight unit)

<b>SN</b>	Serial number
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<b>LOT</b>	Lot
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<b>QC</b>	Quality control
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6

## IX. WARRANTY CONDITIONS

1. Warranty period of the BLUEDENT LED SMART curing light is 24 (twenty four) months from the date of purchase. If date of purchase is not written, warranty starts at date of production.
2. During the warranty period the replacement of the defective parts (except for lightguide; LED module 6 months warranty) is done free of charge by manufacturer's service.
3. If during the guarantee period the unit is damaged, due to incorrect operation (mechanical, chemical, thermal or electrical damages), damage caused by improper use, storage or any other reasons in user's fault, the repair is paid by the user.
4. This warranty becomes null and void if any repair to or servicing of the product is performed by any unauthorized party or if other than original BLUEDENT LED spare parts are used therefore.
5. The manufacturer recommends that the users check once a year (or if there is an incident immediately) in the manufacturer's service if the parameters: output light intensity . This check-up is done free of charge in the manufacturer's service.
6. The warranty servicing is performed at the manufacturer's service at the following address:



155 Vasil Aprilov Blvd., 4027 Plovdiv, Bulgaria  
tel./fax: +359 32 641913 , +359 32 644089  
e-mail: office@bglight.com, http://www.bglight.com



## IX. SERVICE DATA

Accepting date	Service date	Service	Signature

## X. BLUEDENT LED SMART DATA

SN:  LOT:

DATE OF PRODUCTION:  QC:

DATE OF PURCHASE:

7