

# Mini LED ORTHO 2

User's manual



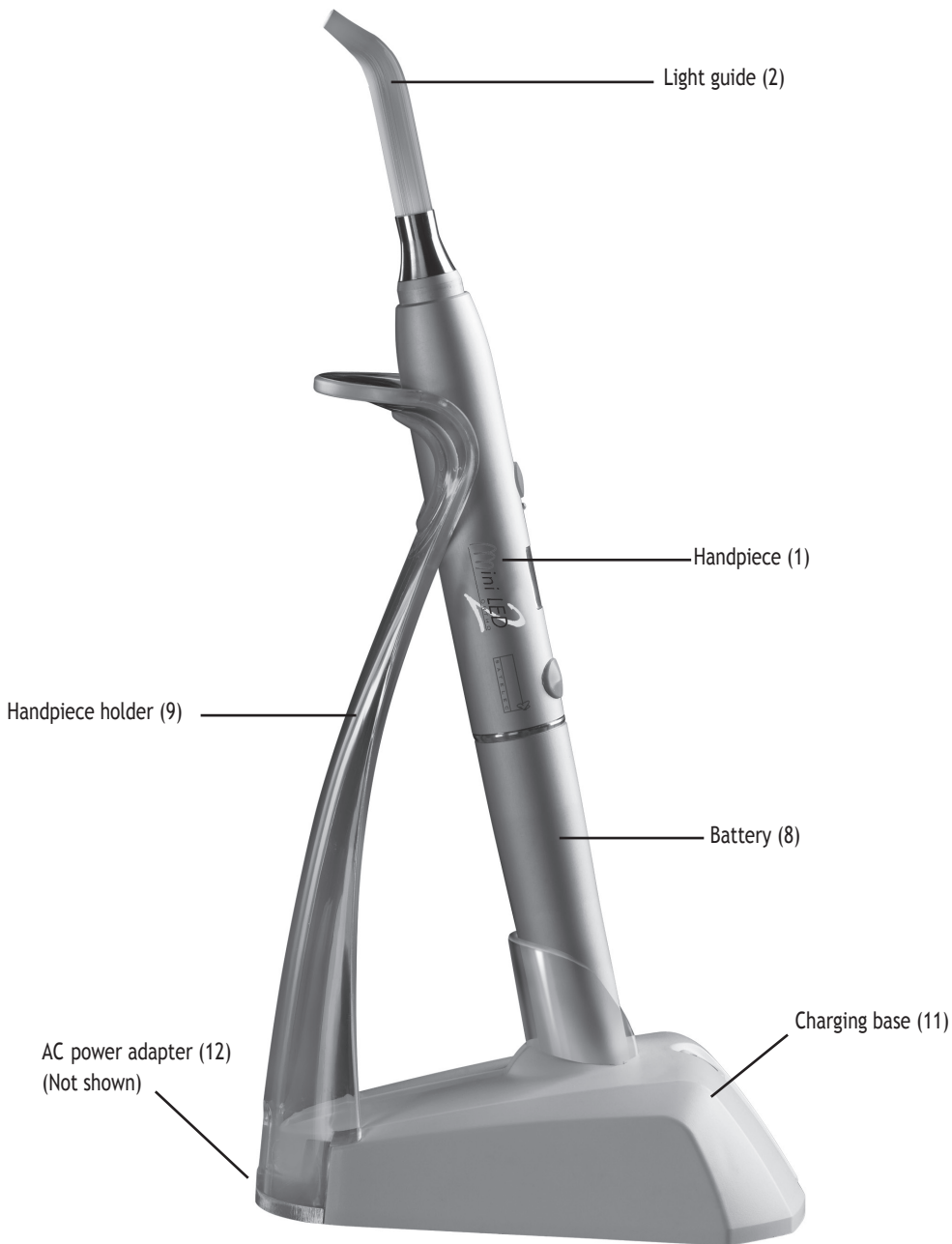
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SATELEC  
**ACTEON**

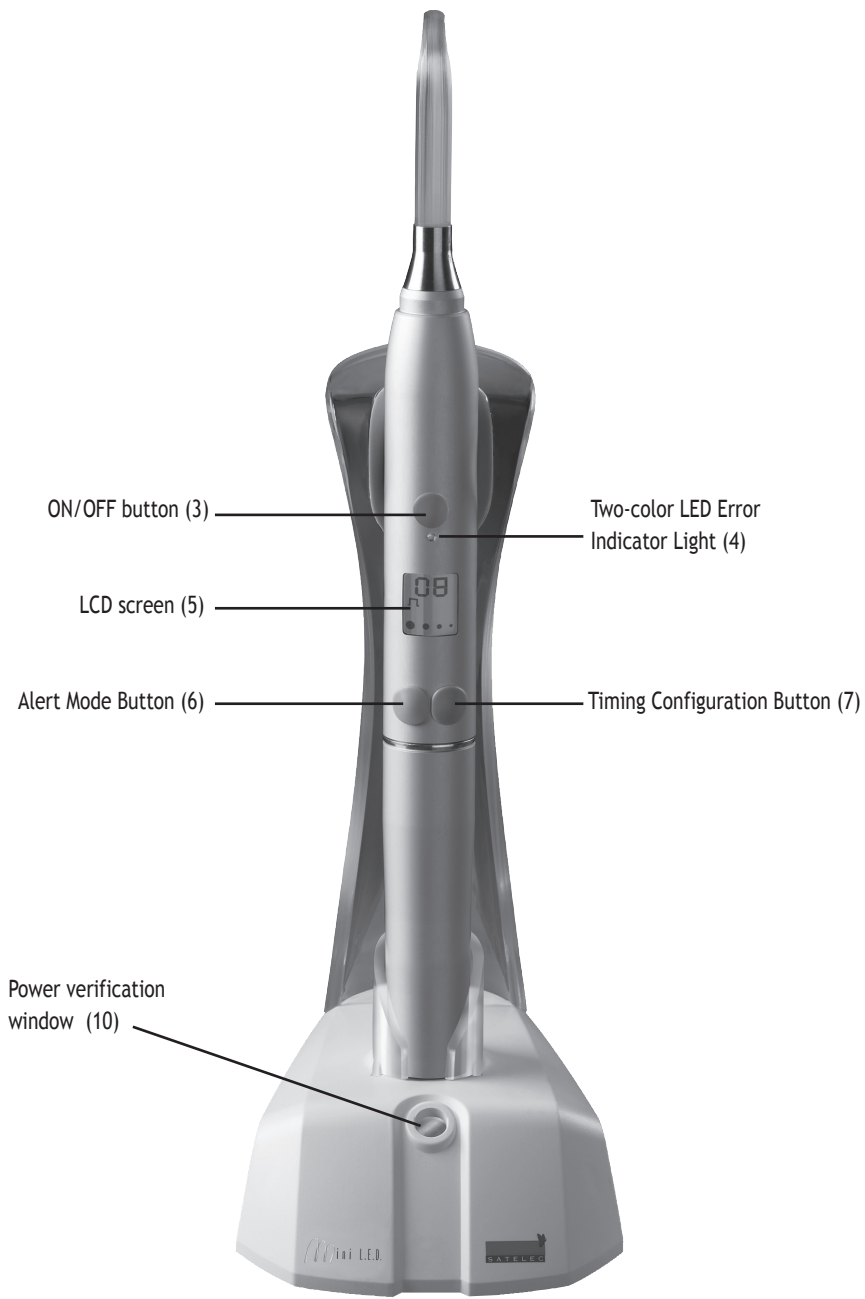


# ENGLISH

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**FIG. 1**



**FIG. 2**

This is the user's manual for your Mini LED™ ORTHO 2 device.

This document must be used together with the general user's manual for SATELEC curing lamps.

## I - DESCRIPTION

### 1.1 PHYSICAL DESCRIPTION

The Mini LED™ ORTHO 2 includes the following components:

- Handpiece (Fig. 1-1) fitted with a protective cap.
- Lithium-ion battery (Fig. 1-8).
- Opalescent light guide, 45° curve, Ø 5.5mm, sterilizable (Fig. 1-2).
- Charging base with handpiece holder (Fig. 1-9 and 11).
- The main plugs (USA, AUS, EEC, UK) (Fig. 1-12 - not shown).
- The rigid eye shield.
- Accompanying documentation.

Optional:

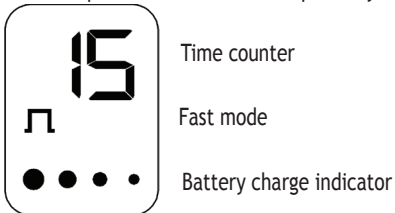
- Multi-fiber light guide, 45° curve, Ø 7.5mm, sterilizable

### 1.2 TECHNICAL DESCRIPTION

The Mini LED™ ORTHO 2 is equipped with a Light-Emitting Diode (LED) that emits blue visible light of a wavelength between 420 and 480 nm for the photopolymerization of dental materials.

#### LCD (Liquid Crystal Display) screen (Fig. 2- 5)

The LCD screen is backlit and allows the display of the different pieces of information required by the user.



The LCD comprises, from top to bottom:

- Display of time counter for polymerization light emission time, expressed in seconds.
- A pictogram indicating the Fast mode.

- Display of the battery charge level status (battery being most charged when all of the pictogram's round symbols are displayed and the least charged when all of the round symbols have disappeared from the LCD screen).

#### Control buttons (Fig. 2-3/6/7)

The handpiece comprises three buttons:

- An ON/OFF button (Fig. 2-3) to start or stop the polymerization cycle.
- Left button (Fig. 2-6) for selecting the types of alerts.
- Right button (Fig. 2-7) for selecting the exposure time.

#### Types of alerts

You can choose two kinds of alerts: beep or flash. Every five seconds the selected warning informs you of the progress of the current cycle.

By pushing the left button (Fig. 2-6), you can select the following combinations:

- Beep;
- Flash;
- Beep and Flash;
- Neither Beep nor Flas .

#### Charge time

Battery charge time is about 3 hours.

Battery charge level indicator

When only one element of the pictogram remains (the one farthest to the right on the LCD screen), two beeps warn you that there are about 500 seconds of polymerization remaining.

The Mini LED™ ORTHO 2 should then be returned to the charging base.

When the battery is completely discharged, the LCD screen displays the message "Lb" (Low battery) and no round symbols are shown, the handpiece then beeps 4 times and the error indicator light becomes red.

#### Error Indicator light

An error indicator light (Fig. 2-4) is located below the On/Off button. The indicator light shines red when the unit detects an error and shines green when the unit is in good working condition. The indicator light is unlit

when the handpiece is in standby mode.

### Charging base

The charging base is used to recharge the battery and also includes a translucent handpiece holder (Fig. 1-9) and a power level verification window (Fig. 2-10). The translucent handpiece holder holds the unit in the charging base and also lights up to indicate charging status. The power level verification window is located on the front of the charging base and serves to verify the power output of the light curing unit.

Place the charging base on a hard, level, stable surface with an inclination of no more than 5°.

When the charging base's AC power is plugged in, the translucent handpiece holder beeps and flashes red, green, and blue.

Place the curing light on the holder ensuring that there is good contact between the spring loaded contacts on the charging base and the copper contacts on the bottom of the battery. Two beeps confirm that the unit is correctly positioned on the charging base and the translucent holder flashes blue, indicating that the battery is charging.

When the battery is completely charged, the translucent holder will shine steady blue.

### Power level verification window

The procedure for using the power level verification window is as follows: Check that the power level verification window is intact and clean.

Ensure that the light guide is intact and clean and insert it into the handpiece.

Place the tip of the light guide flat against the power level verification window and activate the curing light.

The translucent handpiece holder will shine green if compliant power level is detected or red if the power is insufficient.

If the power level is low, please refer to chapter IV TROUBLESHOOTING in the general user's manual for SATELEC curing lamps.

### Technical specifications

**Model name:** Mini LED™ ORTHO 2

#### **Dimensions without light guide:**

**Weight:** 160 g

**Dimensions:** Ø24 x 201 mm

**Operation:** Continuous operation

#### **Protection:**

**Category:** Type B

**Protection:** 5 A T fuse F1 (non accessible) 125 V

**Protection index:** IPX0

#### **AC power adapter:**

**Input voltage:** 100 V AC to 240 V AC

**Frequency:** 50 Hz to 60 Hz

**Output voltage:** 12 V DC

**Output current:** 0.8 A

**Category:** II

**Protection index:** IP 41

**Reference:** FRIWO FW7660M/12

#### **Charging base:**

**Input voltage:** 12 V DC

**Protection:** 3 A T fuse (non accessible) 125 V

**Category:** Continuous operation

**Protection index:** IPX0

#### **Battery:**

**Type:** Lithium-Ion

**Dimensions:** Ø24 x 88 mm

**Capacity:** 2400 mAh

#### **Optical specifications:**

- LED for polymerization:

**Wavelength range:** 420 - 480 nm

**Peak wavelength:** 455 - 465 nm

**Intensity:** 3000 mW/cm<sup>2</sup> ± 10% for opalescent light guide diameter of 5.5 mm

**Class:** IIa according to European directive 93/42/EEC

**Maximum exposure time:** 32 seconds

#### **Temperatures:**

**Operation:** +10°C to +40°C

**Storage:** 0°C to +50°C

#### **Humidity:**

**Operation:** 30% to 75%

Storage: 0% to 100% condensation included

## II - INSTALLATION/STARTUP

### 2.1 OPERATING FOR THE FIRST TIME

On reception of the unit, look for any damage that may have occurred during transportation.

If necessary, contact your supplier.

Prior to any use, it is essential that the sterilizable accessories (light guide and protective shield) be sterilized and that the unit base be disinfected (see the maintenance chapter in the general user's manual for SATELEC curing lamps).

### 2.2 INSTALLATION

**Ensure that the unit is not installed adjacent to or on top of any other equipment.**

**Do not place the power cord in a cable feed through or cable cover.**

Remove the protective caps from the handpiece (to be kept during maintenance to prevent the liquid products from damaging the LEDs), screw the battery onto the handpiece and insert the sterilized light guide into the handpiece.

Ensure that the light guide is properly inserted, confirmed by a click.

Ensure that all sections of the LCD screen are illuminated once the battery has been properly screwed on.

Place the base on a hard and stable surface that is not inclined by more than 5°.

Put the plug corresponding to the network on the adapter.

Connect the AC adapter after ensuring that the voltage indicated corresponds to the electrical installation available in the dental practice.

Two audible beeps confirm that the unit has been correctly placed on its holder.

The translucent holder base lights up blue and starts flashing, indicating that the battery is charging.

As soon as the battery is charged, the translucent holder base stops flashing and the blue light remains illuminated continuously.

The battery supplied is only charged to 60% prior to

shipment. Charge it fully prior to using it each time.

### 2.3 EXPOSURE TIMES AVAILABLE

Mini LED™ ORTHO 2 offers 4 exposure times, selected by pushing the right button (Fig. 2-7):

4 seconds;

8 seconds;

12 seconds;

32 seconds.

### 2.3 ALERTS OFFERED

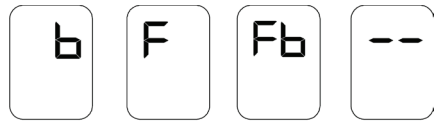
You can choose two kinds of alerts: beep or flash. Every five seconds the selected alert informs you of the progress of the current cycle.

By pushing the left button (Fig. 2-6), you can select the following combinations:

Beep (shows b) ;

Flash (shows F) ;

Beep and Flash (shows Fb) ;



## III - ROUTINE OPERATION

The Mini LED™ ORTHO 2 is normally placed on its holder. The first time you plug it into the battery it will default to the 4 seconds fast curing mode and the beep alert. Your Mini LED™ ORTHO 2 is ready to operate once the curing time and the kind of alert have been selected. Place the light guide as close as possible to the surface of the material to be polymerized, without touching it as this may adversely affect the quality of the polymerization. The polymerization starts by pushing the ON/OFF button. The setting will be confirmed by an audible signal (beep). A countdown on the LCD screen shows you how much time remains, and every five seconds the selected alert informs you of the progress of the current cycle. When the polymerization cycle is completed, the time that was applied is displayed. You can press the ON/OFF button at any time to interrupt the current polymerization cycle. After 5 minutes without use, the unit goes into standby mode (low consumption). The green indicator light and the LCD screen backlighting switch off. The unit can be



taken out of standby mode by simply pressing one of the three buttons (which will not activate that function when coming out of standby mode).

## IV - CONFIGURATION

### 4.1 START UP

On start up, the unit performs an automatic test sequence (auto-check).

The device automatically recalls the settings used for the previous dental treatment.

### 4.2 EXPOSURE TIMES

Times are selected by pushing the right button (Fig. 2-7) on the handpiece.

### 4.3 ALERTS

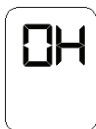
Combinations are chosen by pushing the left button (Fig. 2-6). Then, this selection is validated by waiting 3 seconds, by pushing the ON / OFF button (Fig. 2-3), or by pushing the button on the right (Fig. 2-7).

## V - INTERLOCKS

The Mini LED™ ORTHO 2 is equipped with a system for the detection of possible unit operation anomalies.

### 5.1 EXCESSIVE TEMPERATURE

During intensive use, an excessive temperature may be detected and the screen then displays the letters "OH" (Over Heat), the audible alert (beep) sounds 4 times and the error indicator light (two-color LED) becomes red.



It is then recommended that the user leave the handpiece to cool for a few minutes, until the indicator light becomes green again and the screen once again displays the selected time cycle.

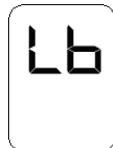
### 5.2 BATTERY CHARGE LEVEL

When the LCD screen displays the last remaining round battery charge indicator, the audible alert (beep)

sounds twice.

You then have about 500 seconds remaining before the unit becomes completely discharged. It is then recommended, if possible, to charge the battery for further use.

When the battery becomes completely discharged, the letters "Lb" (Low Battery) are displayed on the screen, the audible alert (beep) sounds 4 times and the indicator light (two-color LED) becomes red.



The user must return the handpiece to its charging base to recharge the unit's battery (see chapter 2.2 INSTALLATION).

## VI - ACCESSORIES

The following accessories are available for the Mini LED™ ORTHO 2:

- Opalescent light guide Ø5.5mm:  
Ref. F02652
- Opalescent light guide Ø7.5mm:  
Ref. F02648 (option)
- Oval eye shield:  
Ref. F05407
- Power cord:  
Ref. F05216
- Battery:  
Ref. F05211
- Kit of 5 sterilizable flexible optical shields Ø5.5mm:  
Ref. F61505 (option)


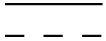







## VII - TROUBLESHOOTING GUIDE

The unit is not repairable in-situ.

All maintenance/repair procedures must be performed in a specialist workshop.

Symptom	Possible causes	Solutions
No operation (LCD screen off)	Battery completely discharged	Recharge battery
	Battery defective	Return to SATELEC after-sales department
	Mini LED™ defective	Return to SATELEC after-sales department
No operation (LCD screen on)	Mini LED™ defective	Return to SATELEC after-sales department
Light power defect or no light power	LED defective and / or dirty	Check cleanliness of LEDs, clean with dry air jet and / or return to SATELEC after-sales department
	Mini LED™ defective	Return to SATELEC after-sales department
	Defective buttons	Return to SATELEC after-sales department
	Light guide defective and/or dirty	Clean light guide and/or Return to SATELEC after-sales department
	Reflector defective or dirty	Clean reflector (dry air jet) and/or Return to SATELEC after-sales department
Charger does not operate	AC power wall outlet defective	Contact your electrician
	AC power adapter defective	Return to SATELEC after-sales department
	Light and audible alarms defective	Return to SATELEC after-sales department
	Contact failure on Jack connector socket	Return to SATELEC after-sales department
	Fuse defective	Return to SATELEC after-sales department
Dysfunction of power level verification	Error indicator light defective	Return to SATELEC after-sales department
	Light guide defective and / or dirty	Clean light guide and / or return to SATELEC after-sales department
	LED defective and / or dirty	Check cleanliness of LEDs, clean with dry air jet and / or return to SATELEC after-sales department
	Reflector defective and/or dirty	Clean reflector (dry air jet) and/or Return to SATELEC after-sales department
	Window defective and / or dirty	Clean window

## VIII - SYMBOLS AND ABBREVIATIONS

SYMBOL	DEFINITION
	Alternating current
	Direct current
	Do not discard as household waste
	Please refer to the accompanying documentation
	«ON» / «OFF» (pushbutton)
	Type B
	Protective glasses recommended
	EC marking
	No access for persons with active implant as pacemaker
Rx only	United States Federal Law restricts on its territory the use of this unit exclusively to trained, capable and qualified dental healthcare professionals, or under their control.

Note: Technical personnel of the SATELEC authorized dealer network can obtain from ACTEON GROUP on request all the information they need for repair of the parts of the curing light that ACTEON has identified as repairable.



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