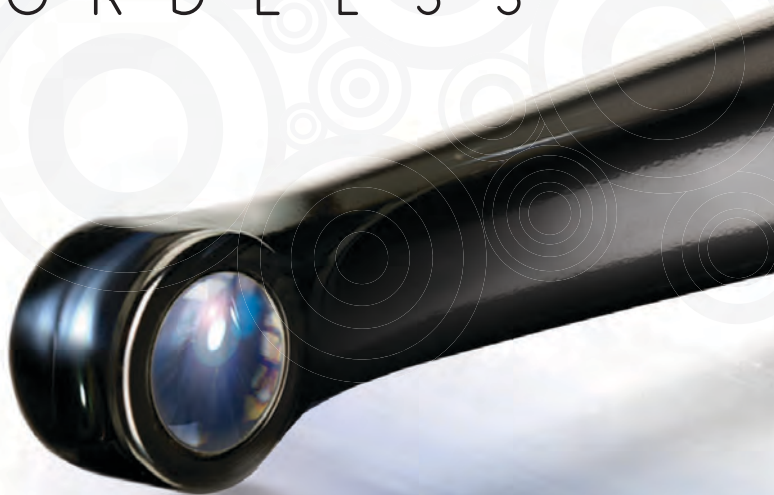


VALO[®]

C O R D L E S S



ULTRADENT
PRODUCTS, INC.

Improving Oral Health Globally

Read all instructions before operating this unit.

VALO
Cordless
Curing Light

WARNING

- Valo emits high intensity light very similar to high intensity Quartz halogen lights and must only be used as indicated in this manual.
- DO NOT look directly into the light output. Patient, clinician, and assistants should always wear UV orange eye protection when VALO is in use.
- USE CAUTION when treating patients who suffer from adverse photobiological reactions or sensitivities, patients who are undergoing chemotherapy treatment, or patients being treated with photosensitizing medication.
- DO NOT expose soft oral tissues at close proximity for more than 10 seconds in any mode. If longer curing time is required, use multiple shorter curing cycles to avoid heating soft tissue, or use a dual-cure product.
- The Xtra Power mode has a 2-second safety delay to limit heating during consecutive curing. At the end of the delay, beeping indicates unit is ready for continued use.
- Take extra care to avoid directing light toward soft tissues.

Product Information:

Indications for Use: The source of illumination for curing photo-activated dental restorative materials and adhesives.

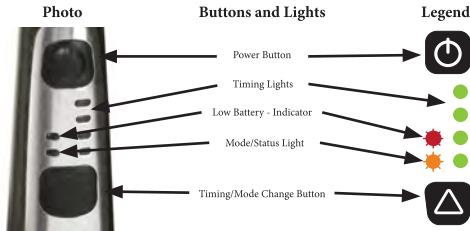
The VALO Cordless curing light uses a custom, multi-wavelength (395 - 480nm) Light Emitting Diode (LED) for producing the high intensity light capable of polymerizing all light cure dental materials. This intensity will also penetrate porcelain and is capable of curing underlying resin cements similar to a quality halogen light.

The VALO Cordless curing light uses Ultradent VALO rechargeable batteries and battery charger.

Product Components:

- 1 – VALO Cordless curing light
- 4 – Ultradent VALO rechargeable batteries
- 1 – Ultradent VALO battery charger with medical grade 12VDC AC power adapter
- 50 – VALO Cordless Barrier Sleeves
- 1 - VALO Cordless Light Shield
- 1 – Handpiece surface mounting bracket with double stick adhesive tape

Overview of Controls:



Instructions for Use:

- 1- Remove all components from the packaging and examine them. If anything appears to be damaged, return to the manufacturer.
- 2- Charge batteries before using the device (See section Charging and Changing Batteries).
- 3- Insert two fully charged batteries positive (+) end first.
- 4- Replace the battery cover.
- 5- The VALO Cordless handpiece will beep when powering on.
- 6- Select the desired mode (see section Quick Mode Guide).
- 7- Press power button to activate the light.

NOTE: The VALO Cordless curing light is programmed to cycle from the Standard Power to the High Power to the Xtra Power mode in sequence. For example, to change from the Standard Power mode to the Xtra Power mode, it is necessary to cycle into the High Power mode and then to the Xtra Power mode.

The VALO Cordless curing light stores the most recently used timing interval, and mode, and it will default back to this whenever the modes are changed or if the batteries are removed.

SLEEP MODE: The VALO Cordless curing light will go into Sleep Mode after 60 seconds of inactivity, as indicated by a slow flashing of the mode/status light. Picking up or touching the unit will wake-up VALO Cordless and automatically return it to the last setting used.

WARNING: Storage and Travel: If storing the VALO Cordless for periods longer than 2 weeks, or packing it for travel, always remove the batteries. If batteries are left in the unit for long periods of time without recharging they may become nonfunctional or un-chargeable.

Charging and Changing Batteries

The VALO Cordless comes with 4 rechargeable lithium iron Phosphate batteries.

How to charge batteries

1. Plug charger into electrical outlet.
2. Insert batteries into charger with positive (+) end pointed towards the indicator lights on charger.
3. Green Lights indicate batteries are ready for use.
4. Batteries will take 1-3 hours to charge. Leave batteries in charger until ready for use.



How to change/insert batteries

1. Remove back cap by twisting counterclockwise one quarter turn.
2. Remove batteries.
3. Insert fresh batteries positive (+) side first.
4. Reattach back cap by aligning and gently pushing while twisting clockwise.
The cap will click when fully attached.
5. The unit is ready for use.



Note:

- VALO Cordless will not operate if batteries are put in backwards. If the VALO Cordless does not turn on when fresh batteries are inserted, remove the batteries and check to see that they are inserted correctly with the positive (+) battery ends pointed forward, as shown above.
- Do not insert fingers, instruments, or other objects into the battery compartment.
- Do not attempt to clean the gold contacts, or any other part of the battery compartment. Call Ultradent Customer Service if there is a concern.

LOW BATTERIES: The VALO Cordless signals the user that it is time to change the batteries when the Low Battery Indicator Light is flashing red. If the battery charge becomes too low, an audible 3 beep warning sound will occur and the VALO will not allow further operation until batteries are recharged or new batteries are inserted. (See Warning Light Guide)

Charging Time and Battery Life: Fully charged battery life in the VALO Cordless is dependent on the MODE, TIME interval, battery type, amount of use, and LED efficiency. In general, rechargeable batteries should last 1 - 2 weeks.

Non-rechargeable batteries may last 2 - 3 times longer.

- **Recommended Recharge Interval:** When low battery indicator comes on, or approximately every 1 – 2 weeks.
- **Extra Batteries:** Valo Cordless comes with 4 rechargeable batteries. We also recommend keeping a spare set of non-rechargeable CR123A Batteries on hand in the event of a problem or loss of the rechargeable batteries.
- **Battery Life Expectancy:** Rechargeable Lithium Iron Phosphate batteries can be recharged approximately 1000 to 2000 times. Based on normal use, batteries should last up to five years.

Note: If you are moving the light from operator to operator and the light does not go into Sleep Mode then the battery life may be affected.

Note:

- Make sure batteries are inserted into the charger positive (+) end first.
- If the red light on the charger doesn't turn to green, when the batteries have been charging longer than 3 hours, this means a battery may be degraded (corrupted) and can not be charged. Try a new battery or call Ultradent Customer Service to order a new set of rechargeable batteries.
- Do not use batteries if the printed battery label is torn or removed from the battery. Replace with a new battery and recycle old battery.

WARNING - CAUTION

- Do not mix rechargeable batteries with non-rechargeable batteries.
- Do not attempt to charge non-rechargeable batteries.
- Use only safe rechargeable Lithium Iron Phosphate batteries or non-rechargeable batteries.
- Do not store batteries in temperatures over 60°C or in direct sunlight.
- **DO NOT autoclave batteries, charger, AC power adapter, or VALO Cordless.**
- **Do not spray batteries, charger, or electrical outlets with disinfectants.**

If necessary, Ultradent authorizes the following alternative batteries and chargers for the VALO Cordless.

Authorized Alternate Batteries	Authorized Alternate Chargers
<p>Rechargeable LiFePO₄ batteries</p> <ol style="list-style-type: none">1. Tenergy® 3.6V RCR123A, 750mAh2. Powerizer® 3.6V RCR123A, 450mAh3. Mottcell® 3.6V IFR16340 series <p>Non-rechargeable, primary batteries</p> <ol style="list-style-type: none">1. Tenergy Propel Photo Lithium: (safe, long lasting, recommended)2. Titanium Innovations CR123A: (safe, long lasting, recommended)3. Energizer® 1234. Duracell® Ultra CR123A5. Sanyo® CR123A6. Rayovac® CR123A7. SureFire® SF123A8. Panasonic® CR123A	<p>Tenergy® 3.6V RCR123 LiFePO₄ charger Powerizer® 3.6 RCR123 LiFePO₄ charger</p>
<p>Note: Ultradent does not recommend or authorize any other batteries or chargers at this time. While other battery types and chargers will operate with the VALO Cordless, they have not been tested and may not have safe battery chemistry or approved safety ratings.</p> <p>Note: Always recycle spent, non-rechargeable batteries.</p>	

Installing Hygienic Barrier Sleeves

The hygienic barrier sleeve is custom fitted to the wand and keeps the surface of the VALO Cordless clean and aseptic. The barrier sleeve prevents cross contamination and helps keep dental composite material from adhering to the surface of the lens and wand body.

Note:

- Using the hygienic barrier sleeve will reduce the light output by 5-10%. Due to the high output power of the VALO Cordless, curing has been shown to be substantially equivalent.
- Barrier sleeves are single patient use only.
- Discard used barrier sleeves after each patient.
- Do not leave barrier sleeves on the wand for extended periods.
- VALO Cordless must be cleaned and sanitized with appropriate cleaning and/or sanitizing agents after each patient. See section titled **Maintenance and Cleaning**.



Quick Mode Guide

Mode Power Level	Standard Power 1000 mW/cm ²				High Power 1400 mW/cm ²				Xtra Power 3200 mW/cm ²	
Power Button										
Mode/Timing LEDs										
Time Button										
Time Options	5s	10s	15s	20s	1s	2s	3s	4s	3s only	
To Change Time	Press and release Time Button quickly to cycle through time options.									
To Change Modes	Press and hold the Time Button for 2 seconds and release. VALO will cycle to next Mode.									
Legend	Solid LEDs				Blinking LEDs					

Quick Curing Guide: Recommended Curing Times for Optimal Results with VALO Cordless

Mode	Standard Mode	High Power Mode	Xtra Power Mode
Power Level	1000 mW/cm ²	1400 mW/cm ²	3200 mW/cm ²
Per Layer	One 10 second cure	Two 4 second cures	One 3 second cure
Final Cure	One 20 second cure	Three 4 second cures	Two 3 second cures

Quick Warning Guide

Power level Warning	Temperature Warning	Calibration Warning	LED Warning
Replace batteries	Allow cool down	Call Customer Service for Repair	Call Customer Service for Repair
Low battery: Slow flashing Shut off: 3 beeps, flashing Prohibits operation	3 beeps Slow flashing Prohibits operation	No sound. Flashing, 2 seconds Allows operation	Continuous 3 beeps Flashing Prohibits operations

CURING MODE: Standard Power mode - 1000 mW/cm²

USES: Curing of restorative materials with photo initiators.

TIMING INTERVALS: 5, 10, 15, 20 seconds.

VALO Cordless defaults to this mode when it is INITIALLY powered on. The Status Light is green and the green Timing Lights are solidly illuminated.

To change timing intervals, quickly press the Time/Mode Button.

Press the Power Button to cure. To stop curing prior to completion of a timing interval, press the Power Button again.

CURING MODE: High Power mode - 1400 mW/cm²

USES: Initial curing of restorative materials with photo initiators. Tacking of veneers, orthodontic brackets, and restorative materials.

TIMING INTERVALS: 1, 2, 3, 4 seconds.

From Standard Power mode, press and hold the Time Button for 2 seconds. The green Timing Lights will illuminate and flash. The Status Light will illuminate as a steady orange light, indicating High Power mode. A two-second power tack is the most commonly used timing interval in this mode.

To change timing intervals, quickly press the Time/Mode Button.

Press the Power Button to cure. To stop curing prior to the completion of a timing interval, press the Power Button again.

To return to Standard Power mode, press and hold the Time/Mode Button for 2 seconds, release, which cycles to Xtra Power Mode, then hold again for 2 seconds, and release to Standard power mode.

CURING MODE: Xtra Power mode - 3200 mW/cm²

USES: The Xtra Power mode is useful for all dental curing. It is especially valuable for deep curing of restorative materials, placing thin veneers, attaching orthodontic brackets, and fast curing in pediatric settings.

TIMING INTERVAL: 3 seconds only (*Note: there is a 2 second safety delay at the end of each curing cycle*).

From the Standard Power mode, press the Time Button for 2 seconds, release, press again for 2 seconds, and release. Three of the green Timing Lights and the orange Status Light will illuminate and flash, indicating Xtra Power mode.

Press the Power Button to cure. To stop curing prior to completion of a timing interval, press the Power Button again.

To return to the Standard Power mode, press and hold the Time Button for 2 seconds.

NOTE: The VALO Cordless curing light is programmed to cycle from the Standard Power mode to the High Power mode to the Xtra Power mode in sequence. For example, to change from the Standard Power mode to the Xtra Power mode, it is necessary to cycle into the High Power mode and then to the Xtra Power mode.

† Note: 'Xtra Power' equal Plasma Power levels in the VALO. In this context Plasma refers to 'plasma-like' due to intense optical output and curing capacity. Actual plasma arc lights generate broad optical output that must be filtered to reduce harmful shortwave ultraviolet radiation.

Note: If it is necessary to cure near soft tissue, cooling with an air stream is an option for keeping the area cooler.

WARNING

- DO NOT look directly into the light output. Patient, clinician and assistants should wear UV orange eye protection when this device is in use.
- DO NOT expose soft oral tissues at close proximity. Maintain a safe distance between the lens and the soft tissue.
- If using the VALO Cordless LED Curing Light in the Standard and high Power modes and in close proximity of the gingival tissue, DO NOT expose tissue for more than 20 seconds. If longer curing time is required, consider a dual-cure product.
- In Xtra Power Mode, DO NOT expose soft oral tissue for more than 9 seconds. The Xtra Power Mode has a 2 second safety delay to limit oral tissue heating during consecutive curing. If a longer cure is needed, consider a dual-cure product.

Maintenance and Cleaning

The VALO Cordless curing light is a sealed unit with a sapphire-like hard surface and a scratch resistant glass lens. After each use, moisten a gauze or soft cloth with an approved surface disinfectant and wipe the surface and lens.

Routinely check the lens for cured dental resins. If necessary, use a non-diamond dental instrument to carefully remove any adhered resin.

The barrier sleeve prevents cross contamination and helps keep dental composite material from adhering to the surface of the lens and wand body.

Light meters differ greatly and are designed for specific light guide tips and lenses. Ultradent recommends checking VALO Cordless in Standard Power mode. NOTE: the true numeric output will be skewed due the inaccuracy of common light meters and the custom LED pack VALO Cordless uses.

WARNING - CAUTION

- DO NOT autoclave batteries, charger, power adapter, or VALO Cordless.
- DO NOT insert fingers, instruments, or other objects into the battery compartment of the VALO Cordless.
- DO NOT attempt to clean the gold contacts, or any part of the battery compartment. Call Ultradent Customer Service if there is a concern.
- DO NOT immerse in any kind of ultrasonic bath or any liquids.
- DO NOT wipe down the VALO Cordless curing light with caustic or abrasive cleaners. See lists of acceptable cleaners below:

ACCEPTABLE CLEANERS:

- Cavicide™ products (Non Bleach)
- Isopropyl alcohol
- Ethyl alcohol-based cleaners
- Lysol® disinfectant

DO NOT USE:

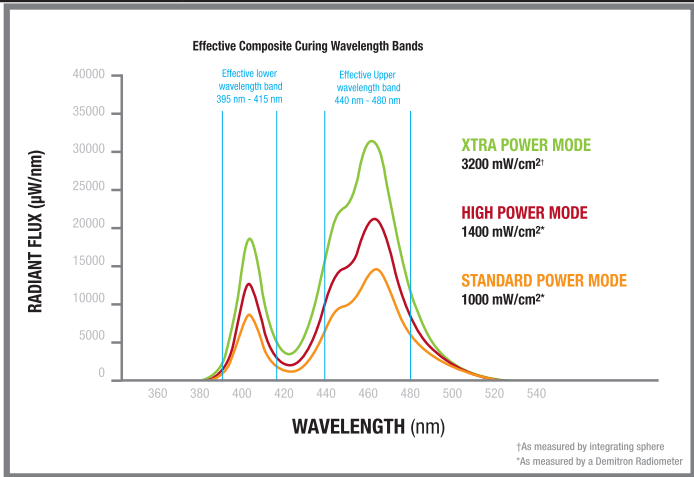
- Strong alkali detergent of any type, including hand soaps and dish soaps
- Bleach-based cleaners (e.g. - Clorox™, Sterilox™)
- Hydrogen Peroxide based cleaners
- Abrasive Cleansers (e.g. — Comet Cleanser™)
- Acetone-based cleaners (e.g. — nail polish remover, Goo-off™)
- MEK (Methyl Ethyl Ketone)
- Birex®

Troubleshooting Guide

If the solutions suggested below do not rectify the problem, please call Ultradent at 800.552.5512. **Outside the United States, call your Ultradent distributor or dental dealer.**

Problem	Possible solutions
Light will not turn on	<ol style="list-style-type: none">1. Press the Time/Mode or Power Button to wake from Power Save Mode.2. Check the red Low Battery Indicator for battery charge status.3. Check that fresh batteries are correctly inserted into the unit.4. If red and yellow Warning LEDs are flashing this means the VALO Cordless has reached its internal temperature safety limit. Allow the VALO Cordless to cool down for 10 minutes or use a cool moist towel to cool the unit down quickly.5. If red Warning LED flashes and beeps continuously, call Ultradent Customer Service for repair.
Light does not stay on for desired time	<ol style="list-style-type: none">1. Check that the unit is set to desired Mode.2. Check the Low Battery Indicator for battery charge status.3. Check that fresh batteries are properly inserted into the unit.
Light is not curing resins properly	<ol style="list-style-type: none">1. Check lens for residual cured resins/composites (see "Maintenance and Cleaning").2. Using proper orange UV eye protection, verify the LED die lights are working.3. Check power level with light meter.4. Check expiration date on curing resin.5. Ensure proper technique is being followed accordingly to manufacturer recommendations.
Batteries will not charge	<ol style="list-style-type: none">1. Make sure batteries are inserted into the charger in the correct orientation and allow batteries to charge for 1-3 hours.2. If red lights on the charger do not change to green, call Ultradent Customer Service to order replacement batteries and/or charger.3. If neither green nor red lights on the charger are visible, call Ultradent Customer Service to order or replace charger and/or AC adapter.
Batteries show corrosion or emit a scorched odor	<ol style="list-style-type: none">1. Remove charger from outlet immediately.2. Call Ultradent Customer Service for new batteries and/or charger.
Charger does not charge batteries	<ol style="list-style-type: none">1. Make sure charger is plugged in and AC adapter is plugged into a working power outlet.2. If green or red lights on the charger are not visible, call Ultradent Customer Service for new charger and/or AC adapter.
Wrapping (plastic covering) comes off of the battery	<ol style="list-style-type: none">1. Do not use these batteries in the VALO Cordless.2. Recycle batteries.3. Call Ultradent Customer Service to order replacement batteries.

Technical Information	VALO Cordless LED Curing Light
Wavelength range	395nm – 480nm (see qualification below) Effective output Power of VALO Cordless falls within the following wavelength range: <ul style="list-style-type: none"> • 395nm <= EP <= 480nm Minimal and insignificant power can be found in wavelength ranges: <ul style="list-style-type: none"> • 380nm – 395nm and 480nm – 510nm



Light Intensity	* Standard power – 1000mW/cm ² +/-10% * High power – 1400mW/cm ² +/-10% † Xtra Power – 3200mW/cm ² +/- 20% * As measured by a Demetron® L.E.D, Radiometer † As measured by a spectrum analyzer Den-Mat® Sapphire Plasma Arc Curing Light – Irradiance measured at 2,600mW/cm ² with a spectrum analyzer
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AC Power Adapter	Globtek Medical Grade with international plug inserts Output: 12VDC, 500mA Input: 100VAC – 240VAC Ratings: Medical Grade, (UL, CE, RoHS, WEEE) Cord: 6 ft (1.8m), 2.5mm DC connector
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VALO Charger	VALO 3.6VDC Lithium Iron Phosphate smart battery charger: <ul style="list-style-type: none"> • Automatic shut off when fully charged • Auto-detection of defective batteries • Protections: Thermal, Overcharge, Short-circuit, reverse polarity <ul style="list-style-type: none"> o Red LED – Charging o Green LED – Empty or Fully Charged o LED off – short circuit • Charging time: 1 – 3 hours Rating: CE, WEEE
VALO Batteries	Rechargeable: Safe chemistry Lithium Iron Phosphate (LiFePO ₄) RCR123A <ul style="list-style-type: none"> • Working Voltage: 3.2VDC Ratings: CE, RoHS, WEEE Alternate use Non-rechargeable: Lithium CR-123A 3VDC (use batteries greater than 1400mAh)
VALO Cordless	Protections: Low Battery, Over Voltage, Over Temperature, LED Failure, Calibration Failure Limitations for Use: VALO Cordless will not allow operation if temperatures exceed 50°C. Ratings: Medical Grade, CE, RoHS, WEEE Weight: <ul style="list-style-type: none"> • With batteries: 6 oz. (170 grams) • Without batteries: 5 oz. (136 grams) Dimension: (8 x 1.28 x 1.06) inches, (203 x 32.5 x 27) mm, nominal tip diameter 10mm

WARNING: When sending units in for repair, service, or calibrations, **always remove the batteries** from the VALO Cordless and charger. Wrap batteries, charger, adapter, and VALO Cordless separately in the return box.

WARNINGS and PRECAUTIONS

Read all instructions before operating this unit. The manufacturer accepts no liability for any damage resulting from the improper use of this unit and/or for any purpose other than those covered by these instructions.

USER - PATIENT SAFETY WARNINGS:

- The VALO Cordless curing light emits high intensity light very similar to high intensity quartz halogen lights and must only be used as indicated in this manual.
- DO NOT look directly into the light output. Patient, clinician and assistants should wear UV orange eye protection when this device is in use.
- DO NOT expose soft oral tissues at close proximity. Maintain a safe distance between the lens and the soft tissue.
- In Xtra Power Mode, DO NOT expose soft oral tissue for more than 10 seconds. The Xtra Power Mode has a 2 second safety delay to limit oral tissue heating during consecutive curing. If a longer cure is needed, consider a dual-cure product (composite or adhesive).
- If using the VALO Cordless curing light in close proximity of the gingival, DO NOT expose tissue for more than 20 seconds. If a 40-second cure is needed, allow 2 minutes between two 20 second cures. If longer curing time is required, consider a dual-cure product.

PRODUCT SAFETY WARNINGS:

- DO NOT autoclave.
- DO NOT immerse in any kind of ultrasonic bath, disinfectant, cleaning solutions, or any kind of liquid.
- PRECAUTION: Static Electricity – This unit may be susceptible to strong magnetic or static electric fields which could disrupt the programming. If you suspect this has occurred, remove the batteries from the unit momentarily and then re-insert them.

VALO[®]

C O R D L E S S

U.S. federal law restricts this device to sale by or on the order of a dentist.
For immediate reorder and/or complete descriptions of Ultradent's product line,
refer to Ultradent's catalog or call toll free 1-800-552-5512.

Outside U.S. call +1-801-572-4200
or visit www.ultradent.com.

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