

# REALITY NOW

THE INFORMATION SOURCE FOR ESTHETIC DENTISTRY

NOVEMBER/DECEMBER 2008 NUMBER 202

## The Ratings | CURING LIGHTS



### Fusion

DentLight

[www.dentlight.com](http://www.dentlight.com)

★★★★★  
(4.3)

#### Prices:

##### Basic unit

\$739.00 (includes standard light head and focused lens)

##### Optional and/or replacement items

Standard light head: \$199.00

White light head: \$199.00

UV light head: \$299.00

Focused lens module: \$86.00

Expanded lens module: \$86.00

#### WARRANTY

1 year

#### WHAT IF IT NEEDS REPAIRS?

Contact DentLight or dealer.

#### IS THERE A LOANER PROGRAM?

No.

#### Raves & Rants

- + Incredible power
- + Aluminum skin in four colors is very unique
- 3-5s curing claim cannot be validated
- Overheats and cuts off at 5 minutes

### Base Unit/Battery Charger

Tubular shape, satin-finished anodized aluminum with a very small, round footprint

(1.8in/4.5cm in diameter) and extends about 8.7in/22.0cm in height (with the wand in place). Functions as both a base unit and recharger. Available in metallic silver, blue, pink, and gold.

The wand inserts vertically into the round recess on the top of the base unit and you don't have to be concerned about aligning anything — you merely seat it facing any direction. This is easy, fast, and can just about be done without even looking. However, you do need to push it with moderate force to make sure it is fully seated in its recess. Otherwise, it may not recharge properly. All of the evaluators considered docking and retrieving the wand to be easy.

There is no power switch on the base unit. Once you plug it into an electric outlet, it is ready to roll although it would be nice to have a small LED glowing to validate its electrical connection. The power cord enters the charger from the rear.

### Wand

The cordless wand, clad in the same aluminum skin as the base unit, has a robust handle section of 0.9in/2.2cm in diameter that morphs into the thin neck, the end of which houses the integral and fixed tip that has about a 100 degree bend. This handle section is composed of two parts. The backend houses the lithium ion battery, which can be unscrewed from the middle section. All but one of the evaluators really liked the design, with the lone holdout considering it acceptable.

Weighing only 3.9oz/110.6g, all of the evaluators considered its minimal weight plus its small size as acceptable. A dental assistant would be able to easily grab this light with his/her “pinky” finger during instrument transfer.

The front of the middle section features the soft touch control panel and LCD. The red embossed power button is at the top of the control panel. To activate the light's functions, you press and hold this button for about two seconds. You will then hear a beep indicating the light is ready for action. All but one evaluator judged turning the light on as easy, with the holdout thinking it was cumbersome.

Right below the power button is the rectangular-shaped LCD. Because of the small size of the wand, the LCD is also miniature, meas-

MICHAEL B. MILLER, D.D.S. — President/Editor-in-Chief

INGRID R. CASTELLANOS, C.D. — Vice President/Publisher

EDITORIAL TEAM: David L. Baird, D.D.S., Bellevue, WA; Robert W. Baker, Jr., D.M.D., Ithaca, NY; Joel H. Berg, D.D.S., M.S., Seattle, WA; Raymond L. Bertolotti, Ph.D., D.D.S., San Leandro, CA; Nathan S. Bimbaum, D.D.S., Wellesley, MA; Alan A. Boghosian, D.D.S., Chicago, IL; Mitch A. Condit, D.D.S., Fort Worth, TX; Bruce J. Crispin, D.D.S., M.S., Los Angeles, CA; Gerald E. Denehy, D.D.S., M.S., Iowa City, IA; Marvin A. Fier, D.D.S., Pomona, NY; Daniel Fortin, D.M.D., M.S., Montreal, Canada; George A. Freedman, D.D.S., Toronto, Ont., Canada; Chris J. Hale, C.D.T., Houston, TX; Edmond R. Hewlett, D.D.S., Los Angeles, CA; David S. Hornbrook, D.D.S., San Diego, CA; Shigehisa Inokoshi, D.D.S., Ph.D., Tokyo, Japan; Ronald D. Jackson, D.D.S., Middleburg, VA; Mark E. Jensen, D.D.S., Ph.D., Biloxi, MS; Thomas P. Keogh, M.D., D.D.S., Navarra, Spain; Timothy F. Kosinski, M.S., D.D.S., Bingham Farms, MI; Hannu O. Laamanen, D.D.S., M.S., Turku, Finland; Paul Landman, D.D.S., Chicago, IL; Clarence C. Lindquist, D.D.S., Washington, D.C.; Edward Lynch, M.A., B.D.Sc., Ph.D., Belfast, Northern Ireland; Sandesh Mayekar, M.D.S., Mumbai, India; Steven McGowan, C.D.T., Seattle, WA; Michael K. McGuire, D.D.S., Houston, TX; Carlos Muñoz, D.D.S., M.S., Buffalo, NY; Ronald Perry, D.D.S., Boston, MA; Christopher Pescatore, D.M.D., Danville, CA; Stephen D. Poss, D.D.S., Brentwood, TN; Gary M. Radz, D.D.S., Denver, CO; Robert G. Ritter, D.M.D., Juniper, FL; Derry F.M. Rogers, B.D.Sc., Melbourne, Australia; Andrew T. Shannon, D.D.S., Vancouver, BC, Canada; Liviu Steier, D.M.D., Mayen, Germany; Franklin Toy, B.D.Sc. (Hons), Ph.D., Augusta, GA; Lori Trost, D.D.S., Columbia, IL; Charles Wakefield, D.D.S., Dallas, TX; Thomas G. Wilson, Jr., D.D.S., Dallas, TX; David Winkler, D.D.S., Windsor Berks, England.

REALITY Research Lab (RRL) Gloria A. Acosta, C.D.; Norma L. Cuitiva, C.D.; Maricela Aguilar, C.D.



A publication member of the  
American Association of Dental Editors

uring only 7mm wide and 14mm high. Fortunately, the main item of interest on the LCD is the time setting. Even though the LCD is quite small, the large numerals indicating the time setting are easily viewed.

Immediately below the LCD is the green embossed and backlit trigger button, called on-off on the light. There is a beep when you press it, followed additional beeps every five seconds until the time expires, when a longer beep sounds. At the same time, the seconds are counting down digitally as displayed on the LCD. The button's backlit function activates along with the light but then deactivates in five seconds regardless of the length of your curing interval. As with the power button, all but one evaluator considered activating the trigger as easy, with the exception thinking it was cumbersome.

The bottom of the control panel is the last button, which is embossed with an M for menu, although it could also be a T for timer, since this is how you change from one timing interval to another. One-third of the evaluators considered it to be cumbersome scrolling through the timer options. One reason for this difficulty is the close proximity of the trigger and menu buttons. When you are not looking, it's not hard to confuse one for the other.

The light will not go to sleep for at least 30 minutes (test was stopped at this point). Therefore, to preserve battery life (assuming you have not placed it back into the charger), you should manually turn it off by pressing and holding the power button, which will be accompanied by a long beep. It remembers its curing interval setting when you reactivate it. Of course, if you place it back into its charger after each patient, then you really don't have to turn it off at all.

For asepsis, there are barrier bags that can be purchased with the light. While we are very much in favor of barriers over disinfection, these bags do not fit the light precisely and tend to move around excessively when you use the light. A more custom bag would be less annoying.

### Battery

Removable lithium ion battery, but unless you purchase a second battery, there is really no reason to remove it from the wand. Just replace the wand in the base unit for charging. A fully charged battery should give you about 34 minutes of curing (manufacturer claims 45 minutes) and requires about 1.5 hours for recharging from total discharge, which is consistent with the manufacturer's claim. All of our evaluators considered the battery life and recharging time acceptable. The amount of battery power remaining is displayed in the upper right corner of the LCD using the standard battery icon and vertical lines indicating how much power remains.

However, if you ever forget to recharge the unit and run out of battery power at an inopportune moment, you have the convenient option of using the same electrical cord that powers the base unit and plugging it directly into the back end of the wand. This action, which is quick and easy, will convert the cordless light into a corded version so you can continue using it.

### Fan

None. Due to the lack of a fan, the light used in full power will cut off after about five minutes of continual curing, although it only lost about 14% of its power before it cut off to prevent overheating. However, the handle can become uncomfortably hot even at four minutes. Nevertheless, none of the evaluators reported any overheating cutoffs, although two evaluators did indicate that the light became very hot during use. In half power, however, the light will run for at least 10 minutes.

### Timer

There are seven settings, with the first four being sequential while the final three being constant. The sequential settings are designed for tacking multiple veneers or orthodontic brackets. These settings sequence the light activation/deactivation in 5-second cycles for a maximum of 80 seconds. For example, setting #1 has the light activating for 1 second followed by 4 seconds of deactivation. Then this cycle is repeated over and over again for 80 seconds unless you hit the trigger again to turn it off. The other sequential setting combos are 2 seconds on/3 seconds off, 3 seconds on/2 seconds off, and 4 seconds on/1 second off. Only one evaluator even tried using the sequential settings, suggesting that you will not be too enthralled with this feature either.

Once you toggle through the sequential settings, you will find the constant ones of 5, 10, and 20 seconds. However, we strongly believe the curing intervals should have been 10, 20, and 40 seconds. Note that the directions indicate you can cure shade A2 composite in 2mm increments in only 3-5 seconds. Our tests do not support that claim, especially if the distance between the composite and tip of the light is 6mm or greater. Only one evaluator used the 5-second interval, further indicating the major shortcoming with this timer.

### Tips

The tips are really composed of two sections. The main tip is called the Light Head. This is the section that sits on the control panel module. It is removed or installed by merely pulling or pushing, similar to how you switch tips on most conventional lights. It also swivels to any position you choose. The Light Head comes in a regular, white light, and UV versions.

The regular version is, understandably, the one you use for conventional curing. The white light is for transillumination, while the UV version is designed for curing materials in the 390-420nm wavelength range such as resin glazes and bleach shades of composite.

At the end of the Light Head is an interchangeable section called the Lens Module. The standard one is called focused, which presumably means its power will be maintained deeper into a composite than other lights. It measures 10mm in diameter.

The other lens module is called Expanded Beam. Even though it measures the same 10mm in diameter as the focused version, its curing power presumably fans out to cure a wider area. Our tests failed to validate this claim. Unless you purchase an additional light head and install the focused tip on one and the expanded tip on the other, you will need to use a small, wrench-like device to unscrew and remove the lens module every time you want to switch them.

We doubt many clinicians will go to this trouble even if it was to your benefit to do so. But even though we were not able to validate its wider beam claim, the expanded tip's performance in our other tests exceeded that of the focused beam. Therefore, we suggest asking your dealer to switch out the focused lens for the expanded version when you purchase it. The curing power decreases 15% for the expanded beam and 19% for the focused lens near their edges. This means you should limit the area cured to 10mm. If your restoration is larger, you'll need to cure each section separately.

If you like tacking veneers in the center before you cure the margins, there are also opaque black plastic caps with a 3mm orifice that can easily be installed on either lens module.

### Power and Curing Modes

As noted previously, there are two modes: full and half power, with the latter recommended for liners/bases and to reduce shrinkage. However, we believe full power should be used for liners/bases and the only reason that less power would lead to less shrinkage is if the material was only partially cured. The real reason you may want to use this light in half power is to reduce the heat generation so it doesn't stop working at the 5-minute mark. In the 10-minute cure test using half power, there was only about a 7% loss in power from the beginning to the end. It achieved full curing power within three seconds of activation.

To switch to the half power mode, activate the light and then press the power button. You will notice the

immediate decrease in power. Half of the evaluators never used half power while the other half thought switching back and forth was cumbersome. In addition, there is no specific icon on the LCD indicating your mode. The only way you can tell is by visually observing the relative brightness of the light by switching back and forth. But if you forget to check, you could actually be using half power and not even know it.

Luckily, this light has enough power so even if you are using it at half power, it should still perform adequately. However, unless you need to use the light for extended curing, we suggest keeping it in full power mode.

### Peak Power (mW/cm<sup>2</sup>)

Tip	Power
Focused	1,400
Expanded	1,650

### Hardness (Knoop) at 2mm

Cure Time (seconds)	Tip	
	Focused	Expanded
5	14.7	24.0
10	24.2	39.2
20	29.7	45.7
40	36.9	53.1

### Heat Generation

Tip	20s/°C change
Focused	48.6
Expanded	38.0

### Does It Cure All Materials?

Yes, but you must use the UV light head for those materials that cure below 420nm.

### Built-In Radiometer

None.

### Directions

Plain paper, tri-fold, in one language and color, several illustrations. Information is relatively easy to follow although some of the aforementioned performance claims were not validated by our tests. There is a new, 4-color version that is even better, has numerous illustrations, and better explanations of the functions. At press time, we were only able to see a PDF version. ➤

	DEMI	Fusion	bluephase 16i	Demetron A.1/A.2	SmartLite iQ2	Ultra-Lume LED 5	Translux Power Blue	
	Kerr	DentLight	Ivoclar Vivadent	Kerr	Dentsply/Caulk	Ultradent	Heraeus	
Price	\$1,263.90	\$739.00	\$1,495.00	A.1: \$650.10 A.2: \$566.50	\$1,508.60	\$999.00	\$1,603.13	
Tips (# of sizes)	6	4	5	7	7	5	1	
Gun/Wand	Wand	Wand	Gun	Wand	Gun	Wand	Wand	
Corded/Cordless	Cordless	Cordless	Cordless	Corded	Cordless	Corded	Cordless	
Battery	Type	Li-ion	Li-ion	Li-ion	None	Li-ion	None	Li-ion
	Fixed/Removable (for recharging)	Removable	Removable, but not for charging	Removable, but not for charging	N/A	Removable, but not for charging	N/A	Fixed
	Curing Time	1.75 hrs	34 min	50 min	N/A	3.5 hrs	N/A	1.0 hr
	Recharging Time	2.5 hrs	1.5 hrs	1.5 hrs	N/A	20 min	N/A	3.5 hrs
Gun/Wand Weight	5.7oz/161.6g	3.9oz/110.6g	10.1oz/286.3g	5.2oz/147.4g	9.5oz/269.3g	4.2 oz/119.1g	5.2oz/147.4g	
Timer (sec)	5, 10, 20	Sequential: 1, 2, 3, 4 Constant: 5, 10, 20	High Power: 5, 10 Soft Start: 5, 10, 15 Low Power: 5, 10, 15, 20, 30	None (beeps)	10, 15, 20, 30, 40	10, 20, 30, 40	None (beeps)	
Peak Power (mW/cm <sup>2</sup> )	1,200	1,650	1,650	1,150	650	825	600	
Built-in Radiometer	None	None	Yes (lights)	None	Yes (lights)	None	Yes (lights)	
Heat Generation (°C)	10.0-16.0	38.0-48.6	6.0-25.0	10.0-16.0	7.0-14.0	51.1	14	
Cure All Materials	No	Yes, but requires UV tip	No	No	No	Yes	No	

## REALITY

**STRENGTHS** Amazing power for such a small, lightweight unit, aluminum cladding sets it apart from the mass of plastic competitors, looks good on the cabinet top, four different colors gives you a décor choice, unusual to have a digital timer and an LCD in a light this size, ability to switch from cordless to corded if necessary, remembers the last setting if you turn it off, no annoying sleep mode, easily removable battery in the event you need to change it, low cost.

**WEAKNESSES** 5-second timer interval has to go. A 40-second time interval should be added. Sequential timer intervals are unnecessary and make the timer too cluttered. Wand style not for those who still prefer a gun. Overheats and cuts off at 5-minute mark in full power. Trigger and menu buttons are too close, making it not immediately apparent if you pressed the wrong one. No indication when you are in half power mode. Tip is only 10mm in diameter, while a larger tip would be preferred.

**BOTTOM LINE** Major bang for your buck with this unique light, but stripping it of the little used and unnecessary features and eliminating the 3-5 second unsubstantiated curing claims could boost its rating even higher.

To become a member of **REALITY** or to reserve your copy of the upcoming 2009 Annual Edition (print version), please visit our Web site at [www.realityesthetics.com](http://www.realityesthetics.com).

### NO COMMERCIALIZATION POLICY

We accept no advertising and are not beholden to any commercial interest. Product evaluations and ratings are intended only to guide our readers to make wise and informed purchases. The unauthorized use of product evaluations and ratings in advertising or for any other commercial purpose is strictly forbidden.

**REALITY** (ISSN#1041-8253) is an online information service from **REALITY** Publishing Company, 11757 Katy Frwy., Suite 210, Houston, TX 77079-1717, U.S.A., 800-544-4999, 281-558-9101, Fax 281-493-1558. A one-year membership includes access to the online database plus nine monthly print issues of **REALITY NOW**. Call for membership rates or access our Web site for enrollment information. Payments by check must be in U.S. funds drawn on a U.S. bank, or by Visa, MasterCard, or American Express. All rights reserved. No part of **REALITY** or **REALITY NOW** may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or by any information storage and retrieval system without the written permission of the Publisher, except where permitted by law. Copyright ©2008 by **REALITY** Publishing Company. GST #898-896-659. POSTMASTER: Send address changes to **REALITY** Publishing Company, 11757 Katy Frwy., Suite 210, Houston, TX 77079-1752.