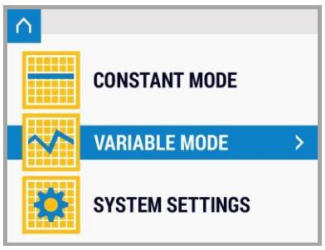
BLUEWAVE® QX4® VERSION 2.0 PRODUCT BULLETIN

BlueWave® QX4® Version 2.0 LED Spot-Curing System

Control up to Four LED Heads Independently for Greater Curing Flexibility

The BlueWave® QX4® Version 2.0 is the next step in high-performance LED spot curing units. This small, versatile unit offers higher intensity, longer die life, and better PLC functionality than the previous version with all the same great benefits of LED technology. The system is comprised of a controller with an easy-to-use control interface and up to four LED heads. Curing cycles can be activated by foot pedal or PLC interface, allowing the unit to be easily incorporated into automated systems. LED heads are available in 365, 385, and 405 nm and can be outfitted with 3-, 5-, or 8-mm diameter focusing lenses. LED heads and focusing lenses can be used in any combination and can be controlled through the system's constant or variable mode.

In variable mode or through the 4-channel PLC interface, each LED head (up to four) can operate independently of the others. Each can be programmed in 1% increments for specific duty cycles, creating curing profiles with many advantages in a manufacturing or R&D setting. Variable mode gives users maximum curing flexibility and control over their process.

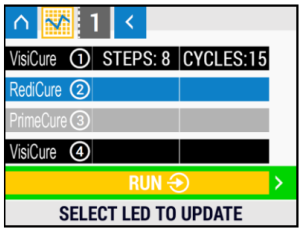


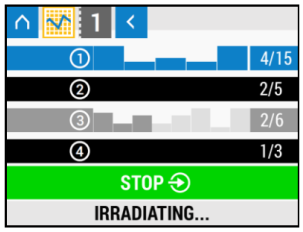
System Features & Benefits

Features	Benefits
One controller controls up to four LED heads	• Provides maximum application flexibility
LED heads available in 365, 385, or 405 nm wavelengths	• Compatible with a variety of UV and visible light-curable materials • Wavelength flexibility allows co-optimization of adhesive and curing system for optimal cure • Units can be custom configured to your curing requirements
Variable mode allows each LED head to be programmed independently	• Individual exposure times and intensity settings available in 1% increments for each LED head allows for maximum curing flexibility
Interchangeable/Replaceable focusing lenses in 3-, 5-, and 8-mm diameters	• Allows tailoring of the unit to your curing requirements
Instant on-off	• No warm-up period • More energy efficient
Efficient LED-head temperature management	• Maximized continuous operation without overheating • Comfortable hand-held operating temperature • Temperature monitoring assures maximum LED life
PLC interface with 4-channel mode	• Easily incorporated into automated systems • Allows the four LED heads to be operated and activated independently in PLC mode

Heat Control

For applications with heat-sensitive components, or exo-thermal chemistry properties, interruptions in the exposure duration can reduce the materials' and substrates thermal rise during the cure process. This isn't a concern with the BlueWave® QX4® because each LED head can be programmed to a precise curing energy exposure profile to reduce the risk of substrate damage.





Depth of Cure vs. Surface Cure

Utilizing the multiple narrow bands available for the BlueWave® QX4®, the perfect combination of outputs can orchestrate the perfect cure. The approach of alternating between depth of cure and surface cure LED heads can aid in the reduction of surface tack otherwise found on single wavelength LED products.

Fluorescing for Inspection

If all four LED heads are not used during parts production, a RediCure® LED head could be set to operate as a low-intensity lamp to fluoresce many Dymax products. This aids in QC inspections, resulting in higher quality finished products.

LED Light-Curing Technology

Dymax LED spot-curing systems generate curing energy using high-intensity LEDs instead of conventional metal-halide or mercury-arc lamps. The relatively narrow frequency band of energy emitted by LEDs results in cooler substrate temperatures compared to traditional conventional arc lamp systems, making them ideal for curing thermally sensitive materials. Dymax LED-curing systems offer many energy and cost-saving benefits, such as no warm-up period, lower energy consumption, no bulbs to change, and more consistent frequency and intensity output for better process control.

Key Advantages of LED Light-Curing Technology

- High electrical efficiency and instant on/off capability for lower operational costs
- Long service life that eliminates bulb replacement and reduces maintenance costs
- "Green" attributes that eliminate mercury and ozone safety risks and disposal handling costs
- Compact unit footprint that reduces workspace requirements and cost of the system
- Consistent frequency and intensity output for better process control
- Narrow wavelength spectral emissions that minimize substrate thermal rise

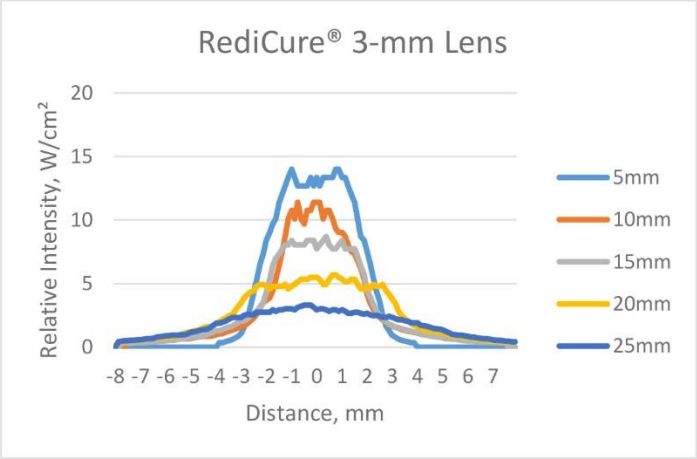
System Specifications

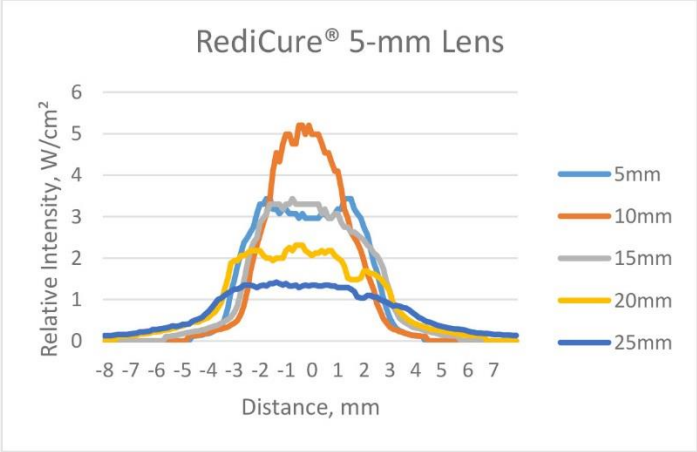
Property	Specification		
LED Head	RediCure®	PrimeCure®	VisiCure®
Intensity Output*	13.9 W/cm²	18.8 W/cm²	14.9 W/cm²
Output Frequency	365 nm	385 nm	405nm
Power Supply Input	100-240 V ~2 A, 50/60 Hz		
LED Timer	0.1 to 999 seconds		
LED Activation	Footswitch, front panel, or PLC		
Cooling	Natural convection		
Controller Dimensions	3.5" x 5.5" x 5.6" [9.0 cm x 14.1 cm x 13.7 cm] (W x D X H)		
Weight	Controller: 2.3 lbs. [1.03 kg] / Head: 0.2 lbs. [0.08 kg]		
Unit Warranty	1 year from purchase date		
Operating Environment	5-40°C [41-104°F], non-condensing		

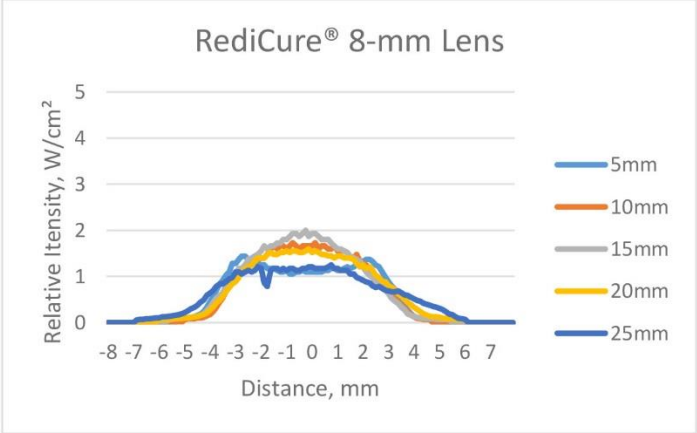
* Measured with 3-mm lens using a Dymax ACCU-CAL™ 50-LED Radiometer, in spot mode using the BlueWave® QX4® Integrated Optic Adapter

System Intensity

RediCure®, 365 nm - Intensity* at Various Working Distances

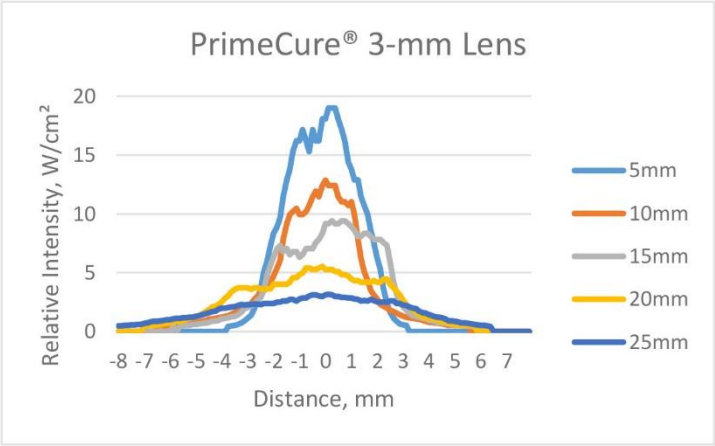


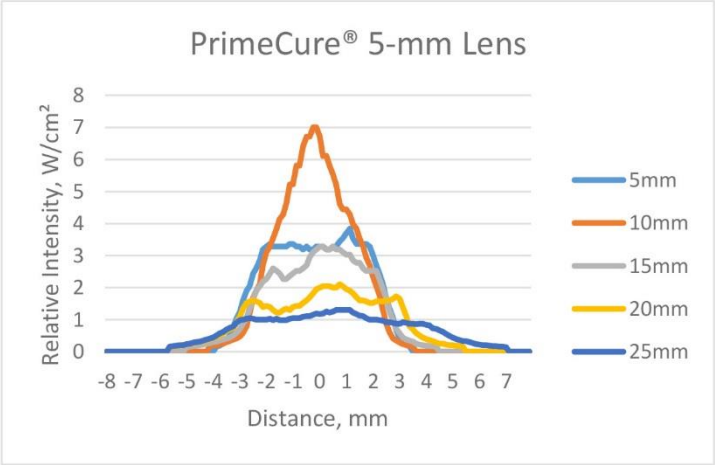


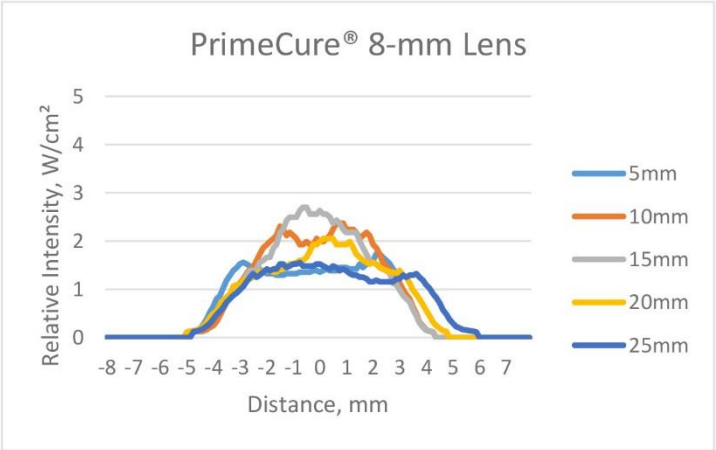


*Curing Area Data taken using Fuji UV Light Distribution Mapping System and normalized to ACCU-CAL™ 50 LED Radiometer.

PrimeCure®, 385 nm - Intensity* at Various Working Distances

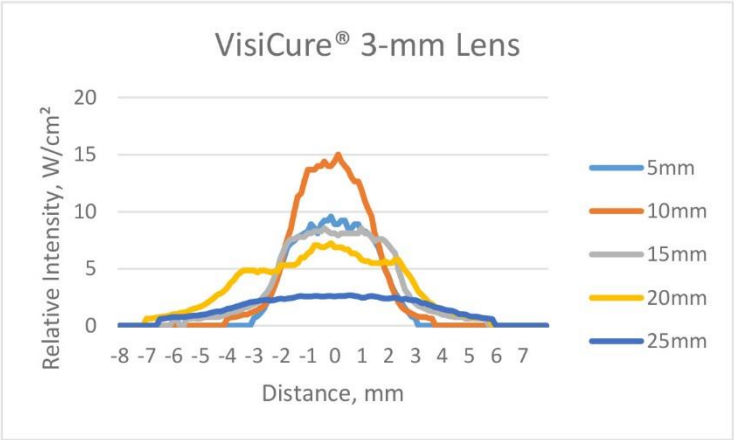


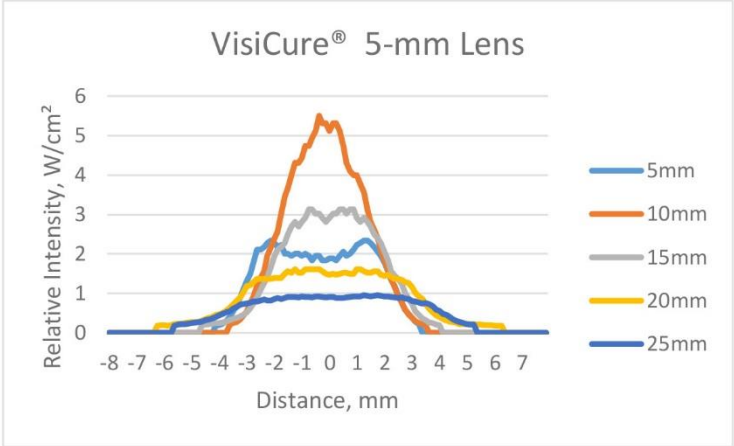


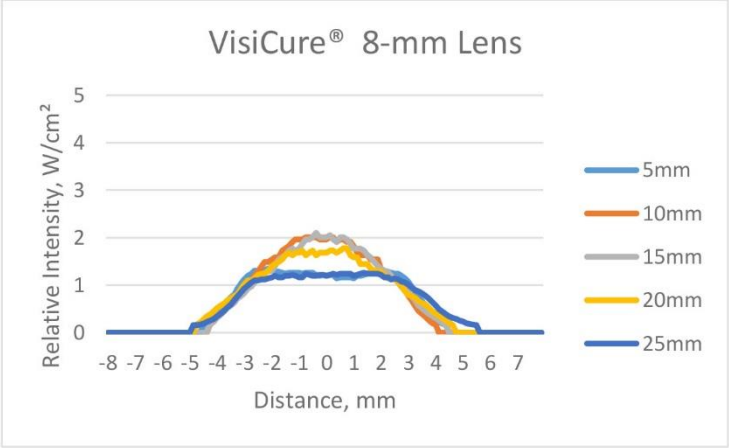


*Curing Area Data taken using Fuji UV Light Distribution Mapping System and normalized to ACCU-CAL™ 50 LED Radiometer.

VisiCure®, 405 nm - Intensity* at Various Working Distances







*Curing Area Data taken using Fuji UV Light Distribution Mapping System and normalized to ACCU-CAL™ 50 LED Radiometer.

Available Systems

A complete BlueWave® QX4® system features a controller and up to four LED heads/lenses. Each LED head must have a lens in order to operate properly. Components are sold separately.

Units are warrantied against defects in material and workmanship for one year from date of purchase.

Main System Components	
Controller Only	**41572** No Power Cord* **41573** Asian Version (Type G Power Cord) **41571** North American Version (Cord with 120V Plug)
LED Head (1.5 M)	**43161** RediCure® 365 nm **43162** PrimeCure® 385 nm **43163** VisiCure® 405 nm
Lens Only	**43164** 3-mm Lens **43165** 5-mm Lens **43166** 8-mm Lens
LED Head Upgrade Kit	**43197** 3-mm **43198** 5-mm **43199** 8-mm Upgrades existing LED heads to the latest design.

* For European customers, the appropriate power cord will be added.

Controller

LED Head (1.5 M Long)

Focusing Lenses
Available in 3, 5, and 8 mm

Spare Parts	
AC Power Adapter	**41547**
Power Cords	**41548** North American Power Cord **41549** Asian Power Cord

Accessories	
Connection Cable Extensions	**41563** 0.5 M Extension **41564** 1.0 M Extension **41565** 1.5 M Extension **41566** 2.0 M Extension
Stands	**41325** 2-Pole Lightguide Stand **41595** 4-Pole Expansion Kit for Lightguide Stand
Radiometers	**40505** ACCU-CAL™ 50-LED Radiometer Kit for LED Spots, Floods, & the BlueWave® QX4®
	42218 BlueWave® QX4® Adapter Upgrade Kit *(For customers who already own an ACCU-CAL™ 50-LED radiometer)* Includes the integrated optic adapter, upgraded internal software, & calibration. Note: Your ACCU-CAL™ 50-LED must be returned to Dymax for programming.

Mounting Stand
2-Pole Lightguide Stand
with 4-Pole Expansion Kit Shown

Integrated Optic Adapter
Specially designed for use with ACCU-CAL™
50-LED Radiometer to test the BlueWave® QX4®.

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Please note that most curing system applications are unique. Dymax does not warrant the fitness of the product for the intended application. Any warranty applicable to the product, its application and use is strictly limited to that contained in Dymax standard Conditions of Sale published on our website. Dymax recommends that any intended application be evaluated and tested by the user to ensure that desired performance criteria are satisfied. Dymax is willing to assist users in their performance testing and evaluation by offering equipment trial rental and leasing programs to assist in such testing and evaluations.

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