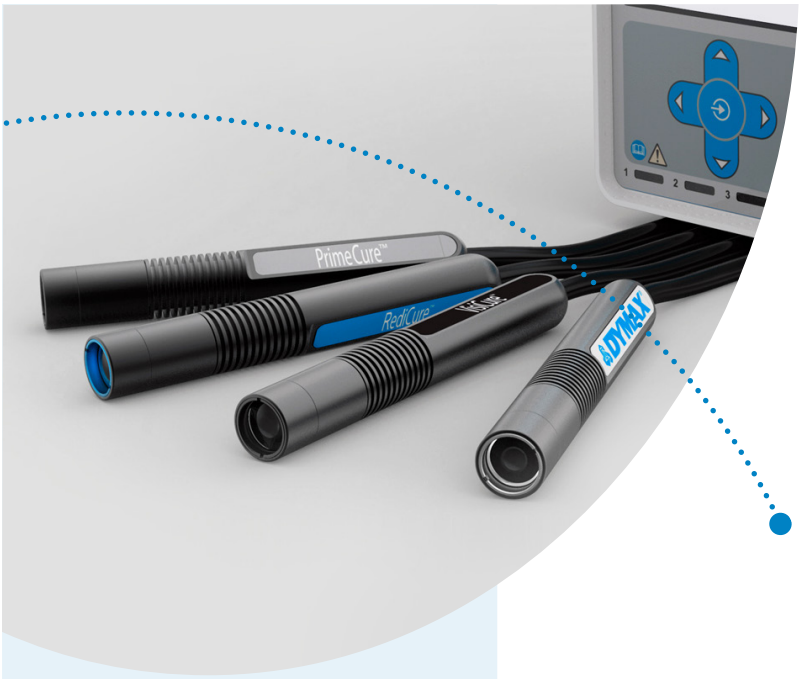


BlueWave® QX4 LED Heads

Small, Versitile Emitters for Spot-Curing Applications

- Available in three wavelengths - 365, 385, & 405 nm for a variety of optimal cure properties
- Up to 18.8 W/cm^2
- Interchangeable focusing lenses in 3-, 5-, and 8-mm diameters to suit wide range of applications
- Efficient LED-head temperature management for better energy efficiency, long die life and safe-to-touch surfaces

BlueWave® QX4 LED heads are small, versatile emitters of high-intensity LED/UV/Visible light that exhibit long die life and cool operation. Available in three standard wavelengths of 365, 385, and 405 nm, the heads are optimized to work seamlessly with Dymax light-curable materials and are capable of successfully curing a wide range of non-Dymax energy-cure adhesives.

The compact construction and small footprint of the BlueWave QX4 allows for multiple installation and set-up configurations. The cool-to-the-touch bodies of the LED heads enable hand-held operation for low-volume production, and the highly flexible cables work well for tight installation spaces. The small size of this unit is invaluable when the light source needs to be in frequent motion, such as in robotic applications. Accessories are available to broaden the system's versatility and ease of use including lenses that are interchangeable and extension cables that reach up to 10 meters from a Dymax controller, maximizing flexibility for a variety of bonding applications.

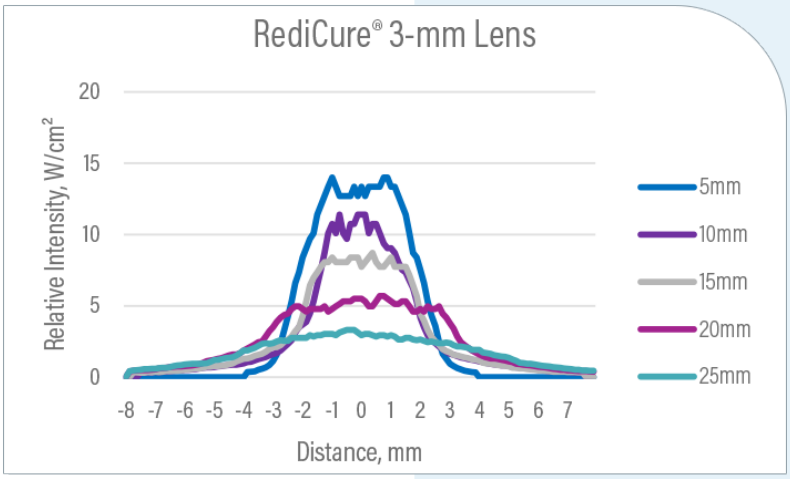
The BlueWave QX4 LED heads are compatible with several Dymax controllers:

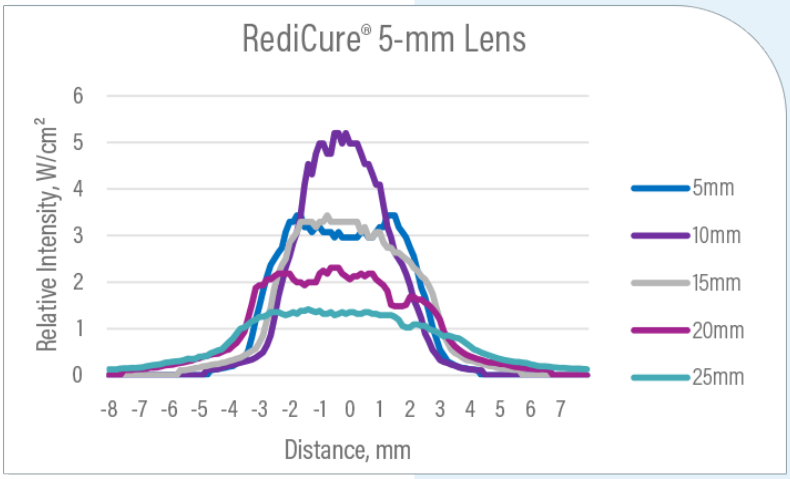
- BlueWave® QX4 Controller - This is the standard controller for the system. It's lab-friendly and features an intuitive user interface that provides four independent channels of control and multiple curing wavelengths in a convenient desktop format.
- BlueWave® MX Multichannel Controllers* – Ideal for semi-automated or higher volume production with up to 16 points of cure and advanced controls.
- BlueWave® MX-MIM Machine Interface Module*– Optimized for automation environments where EtherNet/IP™ or PROFINET® machine protocols enable the highest level of system monitoring and process control.

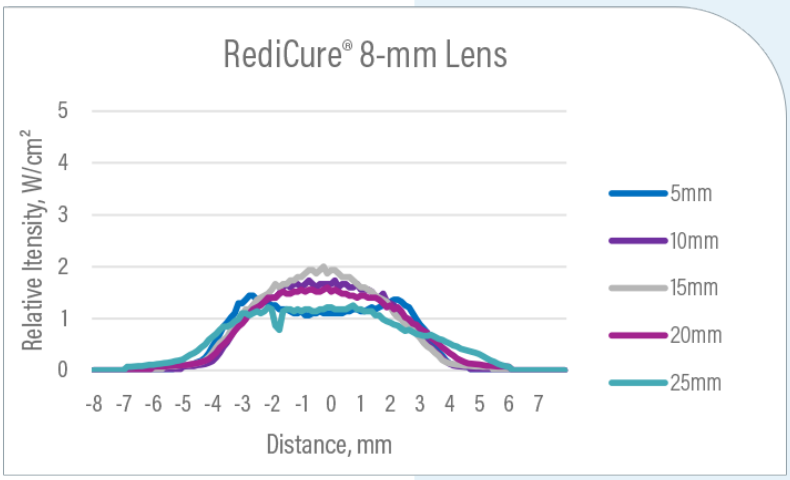
*Requires the use of the MX-4E Expansion Module

System Intensity

Figure 1. RediCure® LED Head, 365 nm - Intensity* at Various Working Distances

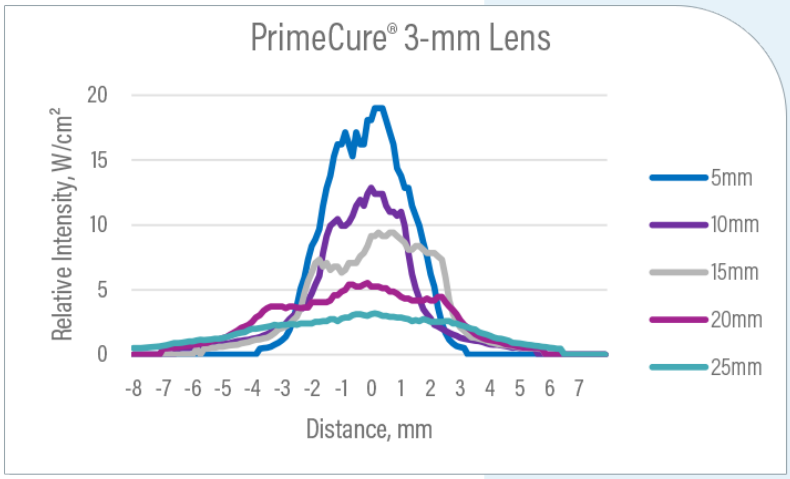


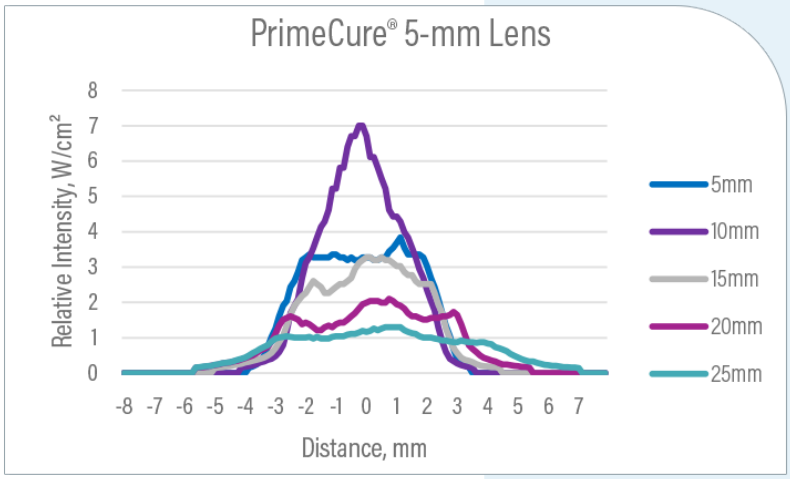


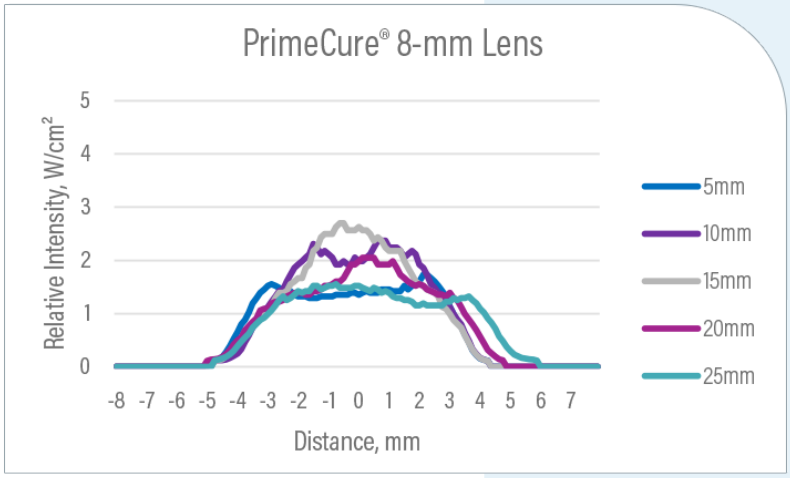


Note: Curing area data taken using Fuji UV Light Distribution Mapping System and normalized to ACCU-CAL™ 50 LED Radiometer.

Figure 2. PrimeCure® LED Head, 385 nm - Intensity* at Various Working Distances

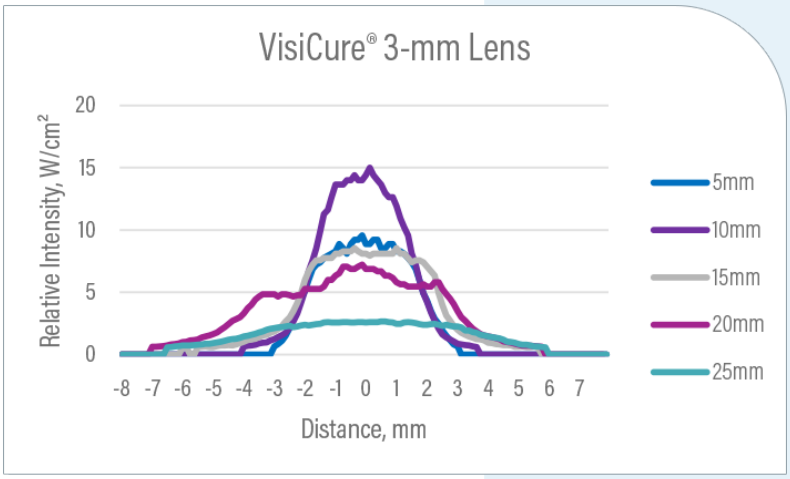


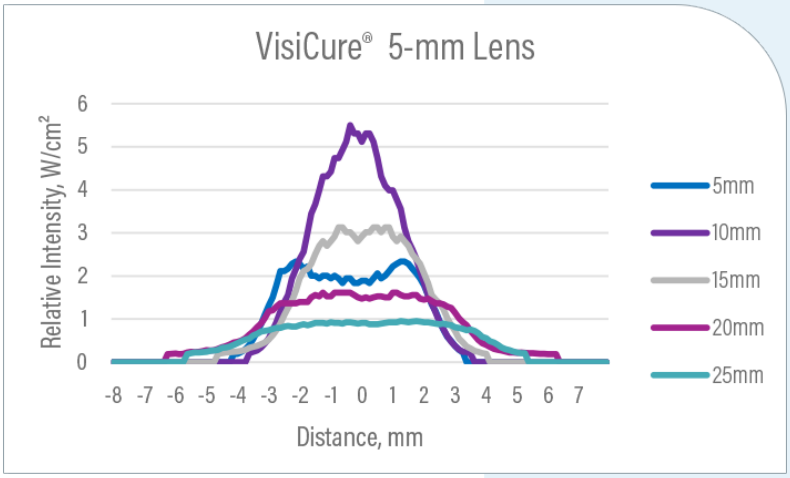


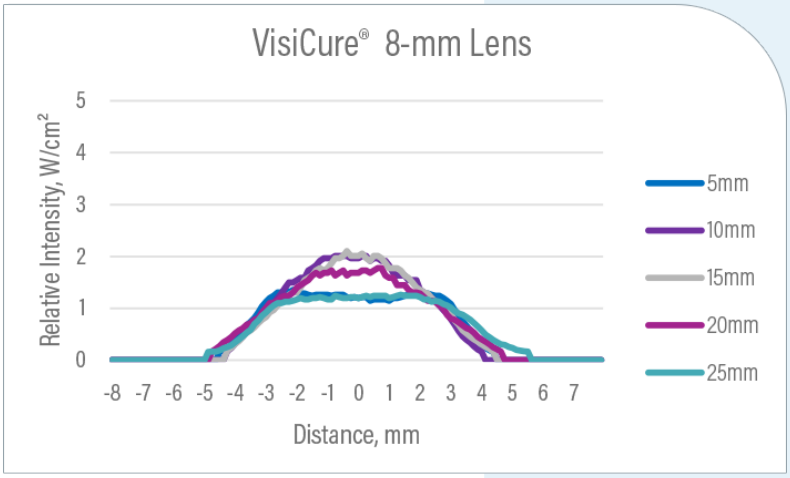


Note: Curing area data taken using Fuji UV Light Distribution Mapping System and normalized to ACCU-CAL™ 50 LED Radiometer.

Figure 3. VisiCure® LED Head, 405 nm - Intensity* at Various Working Distances







Note: Curing area data taken using Fuji UV Light Distribution Mapping System and normalized to ACCU-CAL™ 50 LED Radiometer.

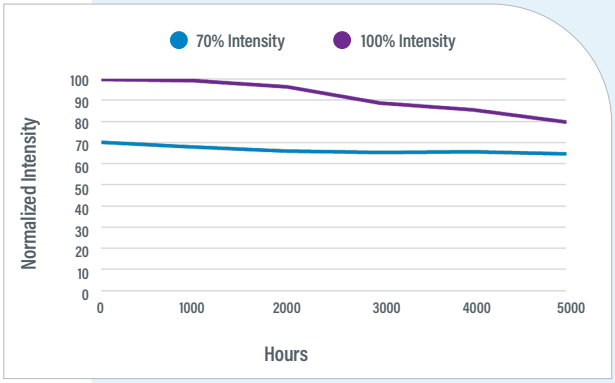
Degradation/Life Testing

Unlike broad-spectrum lamps, LED curing systems do not have bulbs that require regular replacement. Instead, LED curing systems operate with high-intensity LEDs. The instant on/off functioning of LEDs greatly increases the life of these LED systems. Long-term life testing of BlueWave QX4 systems was conducted for 5,000 continuous hours at 100% and 70% intensity. As noted in the graphs below, LED degradation was found to be very low for all wavelengths and intensities. Contact Dymax Application Engineering for additional details on setting up an LED curing process for maximum throughput and LED die life.

RediCure (365 nm) Emitters

- 100% Intensity resulted in a 2.8% degradation per 1,000 hours
- 70% Intensity resulted in a 1.5% degradation per 1,000 hours

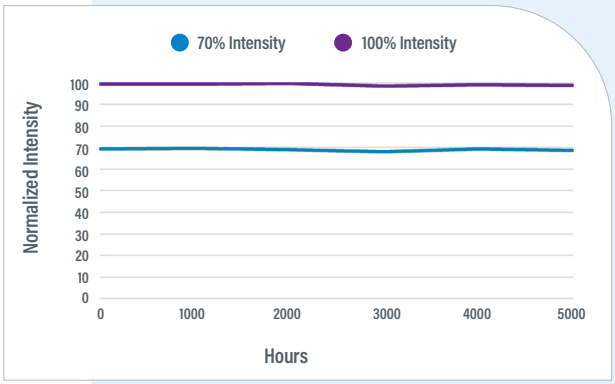
Figure 4. LED Degradion Testing - RediCure



PrimeCure (385 nm) Emitters

- 100% Intensity resulted in a 0.2% degradation per 1,000 hours
- 70% Intensity resulted in a 0.0% degradation per 1,000 hours

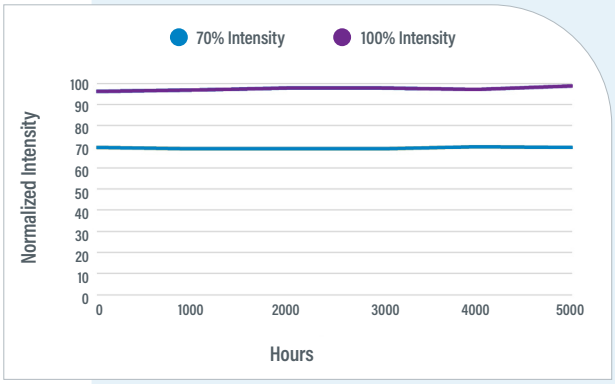
Figure 5. LED Degradion Testing - PrimeCure



VisiCure (405 nm) Emitters

- 100% Intensity resulted in a 0.0% degradation per 1,000 hours
- 70% Intensity resulted in a 0.0% degradation per 1,000 hours

Figure 6. LED Degration Testing - VisiCure



Note: Testing conducted at 70ºF +/-3°F and 30% +/-10% Relative Humidity

System Specifications

Property	Specification
Output Frequency	RediCure® - 365 nm PrimeCure® - 385 nm VisiCure® - 405 nm
Intensity Output*	RediCure® - 13.9 W/cm² PrimeCure® - 18.8 W/cm² VisiCure® - 14.9 W/cm²
Unit Warranty	1 year from purchase date
Operating Environment	5-40°C [41-104°F], non-condensing
Weight	0.2 lbs. [0.08 kg]
Dimensions (W x D X H)	3.5" x 5.5" x 5.6" [9.0 cm x 14.1 cm x 13.7 cm]

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

Figure 7. LED Head Dimensions

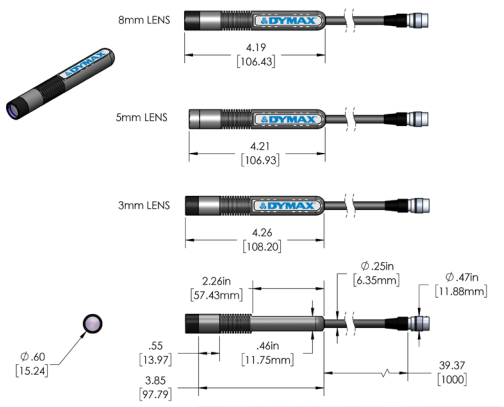
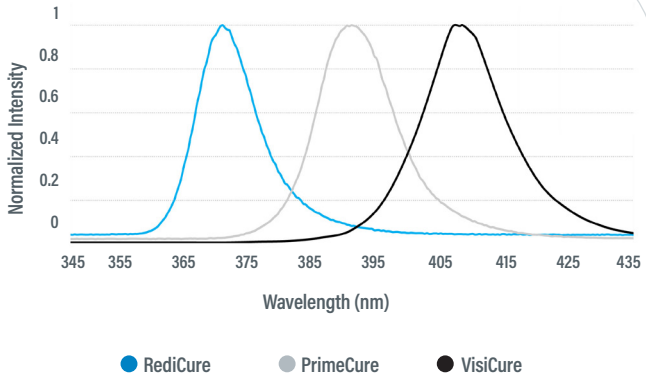


Figure 8. Spectral Output Chart



Ordering Information

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

Part Numbers	
LED Head (1 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
Compatible Controllers*	41572 BlueWave QX4 Controller No Power Cord 41573 BlueWave QX4 Controller Asian Version (Type G Power Cord) 43186 BlueWave MX-Series 2 Channel Controller & Power Supply W/ Asian Power Cord (Type G) 43184 BlueWave MX-Series 2 Channel Controller & Power Supply W/ No Power Cord* 43183 BlueWave MX-Series 4 Channel Controller & Power Supply W/ Asian Power Cord (Type G) 43181 BlueWave MX-Series 4 Channel Controller & Power Supply W/ No Power Cord* 43299 BlueWave MX-MIM Machine Interface Module 43617 MX-4E Extension Module for BlueWave MX-Series Controllers
Cable Extensions Connectable up to 10 meters in total length	41563 0.5M Extension 41564 1.0M Extension 41565 1.5M Extension 41566 2.0M Extension
Stands & Accessories	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, & BlueWave QX4. *Note: This kit is optimized for optical coupling to the BlueWave QX4 LED heads.*

* The appropriate power cord will be added for European customers.

LED Heads (1 M Long)

Focusing Lenses
Available in 3, 5, and 8 mm

DYMAX®

www.dymax.com

Americas
USA | +1.860.482.1010 | info@dymax.com

Europe
Germany | +49 611.962.7900 | info_de@dymax.com
Ireland | +353 21.237.3016 | info_ie@dymax.com

Asia
Singapore | +65.67522887 | info_ap@dymax.com
Shanghai | +86.21.37285759 | dymaxasia@dymax.com
Shenzhen | +86.755.83485759 | dymaxasia@dymax.com
Hong Kong | +852.2460.7038 | dymaxasia@dymax.com
Korea | +82.31.608.3434 | info_kr@dymax.com

PB081DA 7/15/2020