

BlueWave[®] QX4[™]

Frequently Asked Questions

Operation

Q: What if we operate the unit at a distance of 10 or 15 mm?

A: Operating the system at that distance will decrease the intensity but that may still be acceptable for your application.

Q: Is it possible to set up 4 working stations with 4 foot switches?

A: No.

Q: Can that be done by using an external PLC?

A: Yes, using the I/O connections on the back connectors of the QX4 controller, you can attach a PLC to control intensity and exposure times of each channel independently or combined.

LED Heads & Lenses

Q: Can multiple extension cables be used on one channel? If so, how many?

A: Yes, the QX4 extension cable assemblies can be daisy-chained together to form longer runs to a total length not to exceed 3 meters.

Q: If we were to use 3 LED heads on the QX4, do the extension wires need to be the same length?

A: Each channel has its own independent power components so varying wire lengths have no real effect on performance. In addition, wire lengths of 3 meters have a minuscule effect on electrical properties.

Q: Why are different lenses needed for the 3 different wavelengths?

A: Each wavelength required custom lenses to keep the working distance of 5 mm the same for each wavelength.

Q: How can you tell the difference between the lenses for each wavelength?

A: The lenses are color coded with silver, blue, or no (black) rings to match the LED heads.

Q: What happens if you mix up the lenses and the LED heads?

A: There would be a slight difference in intensity, uniformity, and beam profile (which can affect cure), but no damage will occur to the unit or the LED lenses.

Q: Do the lenses degrade and need to be replaced?

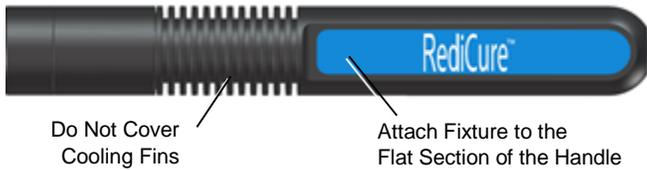
A: Yes, as with all optics, there will be degradation and the rate will be dependent on usage. Maintaining clean optics is the best approach for longest usable life before replacement is necessary.

Q: Are common solvents like IPA or Butyl Acetate ok for cleaning the lenses?

A: IPA is the correct cleaning agent to use. Since these lenses are plastic, ammoniated cleaners should not be used.

Q: Any suggestions on how to best fixture the LED heads?

A: We recommend using non-marring set screws or splitting collar clamps when fixturing the LED heads. Also, to avoid overheating, do not cover the LED head's cooling fins. We suggest clamping on the flat portion of the handle as shown below.



Q: What is the focal or working distance for this system?

A: The recommended focal or working distance is 5 mm. At this distance, the optics and LED head provide the optimum intensity.

Q: Is the focal distance measured 5 mm from the edge of the lens housing or from the center of the lens?

A: It's measured from the edge of the lens housing.

Q: When the LED head is moved further away from the 5-mm working distance, a dark spot appears in the center of the irradiated area. How does this effect the energy uniformity for the curing area?

A: The focusing lenses for the QX4 were developed for a 5-mm working distance. The intensity in these "dark spots" mimics that of the area immediately outside of the target area depending on which lens (3-, 5-, or 8-mm diameter) is being used. But even though you see a dark spot, it does not effect on the energy uniformity being delivered to the cure area (see Chart 1). It's important to remember that UV light is invisible to the human eye.

If you're working with distances greater than 5 mm, we recommend not using the focusing lens and using the built-in collimator on the standard QX4 LED heads. We also recommend using the radiometer adapter developed for the QX4 for the most accurate and consistent intensity readings.

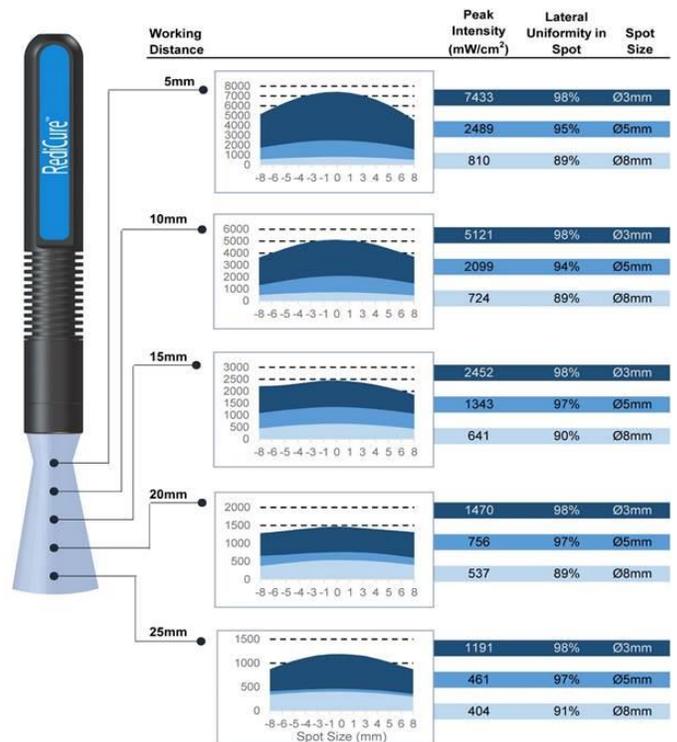
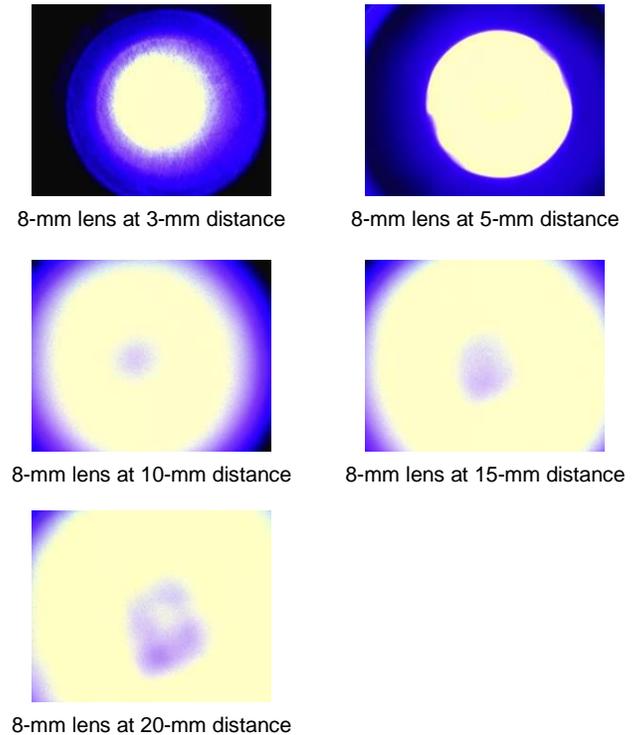


Chart 1

Misc.

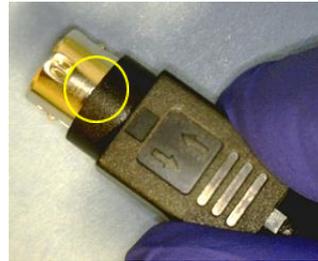
Q: How does usage affect intensity over the life of the unit? What is the expected life of the LED chips in the LED heads?

A: There are a number of parameters, including usage, which cause any (or all) LEDs to degrade in output. For this reason, we suggest that regular radiometric intensity readings be taken to ensure that sufficient energy is still present to meet the curing requirements of an application.

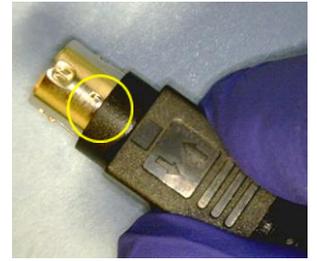
Traditional UV lamps have an expected usage of 2,000 hours, but LED diodes can last much longer. LED diodes can last up to 20,000 hours when used continuously yet the on/off nature of LED systems allows the expected life to become much longer.

Q: The power plug is a bit tricky to insert. Any suggestions on how to do that without damaging the plug?

A: The plug assembly is oriented by locating the flat surface of the housing toward the top. Also identified are arrows that indicate that when inserting the connector into its receptacle, the sleeve should be retracted. This will allow easy insertion. Removal of plug from receptacle is easily accomplished by a retraction of the housing in a direction away from the connector.



Position of plastic when housing is not retracted



Retracted position for insertion and removal



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