

Lighting Options for the Benchtop Reflectance System

Resonon offers three lighting options for use with the Benchtop Reflectance system, each with different advantages.

The recommended solution for most applications, and the default lighting for the Benchtop Reflectance System, is the *6-Fixture Halogen* light. This lighting system provides diffuse illumination over a large area, making it the most versatile choice and the best performing option when scanning objects of different surface-finishes and heights. It can be used with VNIR, NIR, and SWIR imagers.

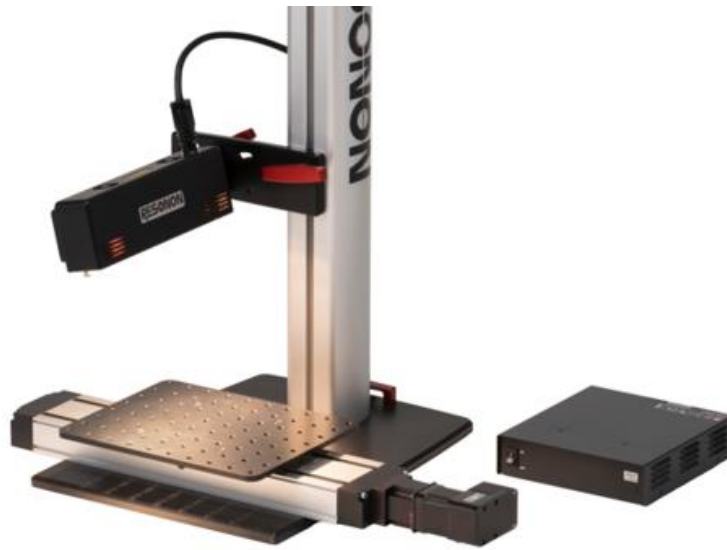


Figure 1. Benchtop Reflectance system with 6-Fixture Halogen light.

The second option is the *Fiber Line* light. This lighting system produces a narrow line of light at a small range of incident angles. This option is recommended for applications where heat might impact the samples being scanned and with objects of a limited height range. The Reflectance/Transmission system uses this light. It can also be used for VNIR, NIR, and SWIR imagers.

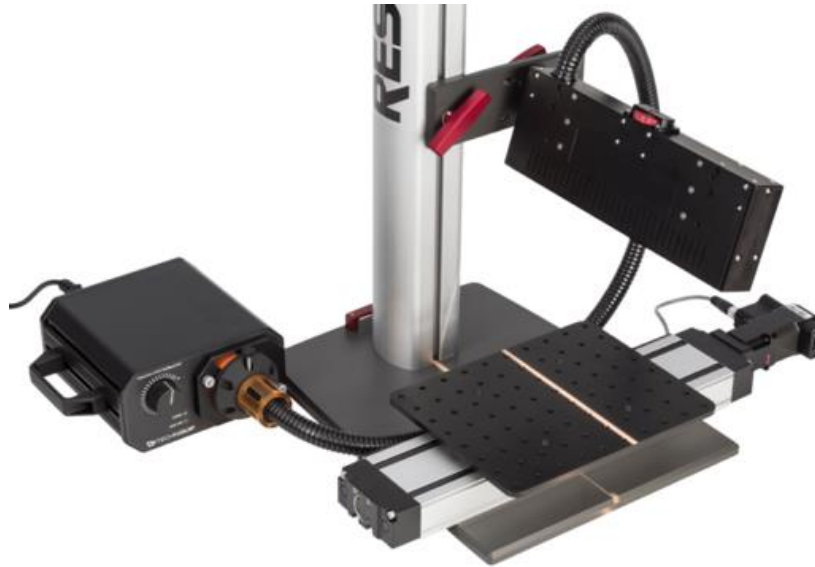


Figure 2. Benchtop Reflectance system with Fiber Line light.

The third option is the *COBRA Hyperspectral LED* light. It is very bright, diffuse, and stable, but provides no light above 970 nm and very little light below 405 nm. For applications that don't require signal in those regions, the LED system can be a great option due to its high brightness, low heat, and reliability. It can only be used for VNIR imagers.



Figure 3. Benchtop Reflectance system with COBRA Hyperspectral LED light.

The spectral differences between the three light sources can be seen in the two plots below. The first plot shows the three spectra in units of radiance, where the second plot shows the raw signal from a Pika XC2 highlighting the relative signals of each illumination source.

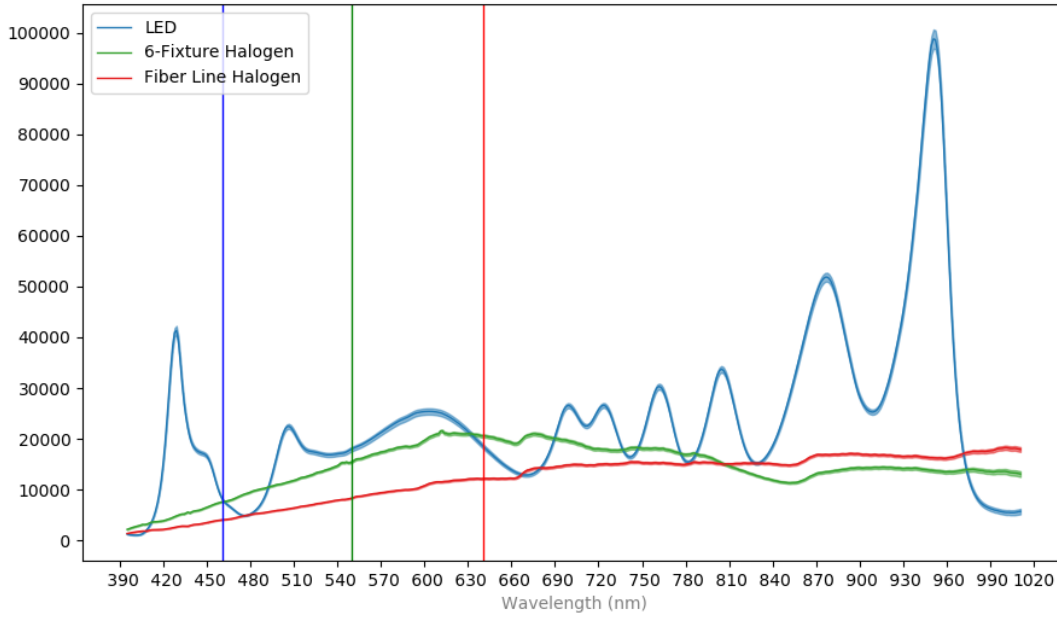


Figure 4: Light output in at-sensor radiance (units of microflicks)

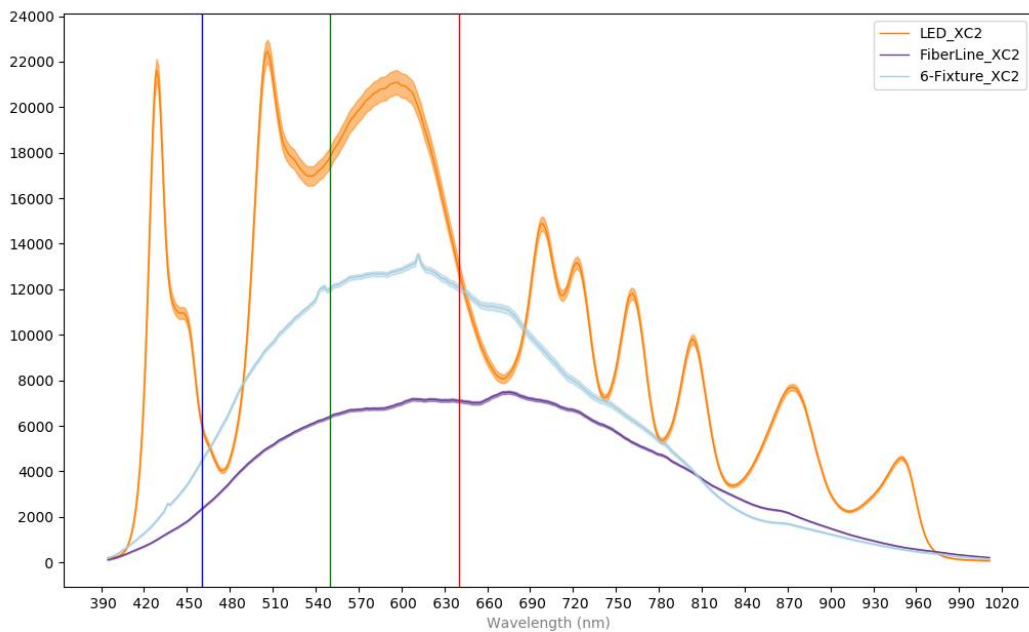


Figure 5: Digital number output of Pika XC2 imaging white reference tile (scaled to match integration times)

For more information or for assistance with choosing the best light source for your application, please contact Resonon (inquiry@resonon.com).