Lighting Options for the Benchtop Reflectance System

6-Fixture Halogen Light

- Recommended solution for most applications
- The default lighting for the Benchtop Reflectance 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
- **Can be used with VNIR, NIR, and SWIR imagers**

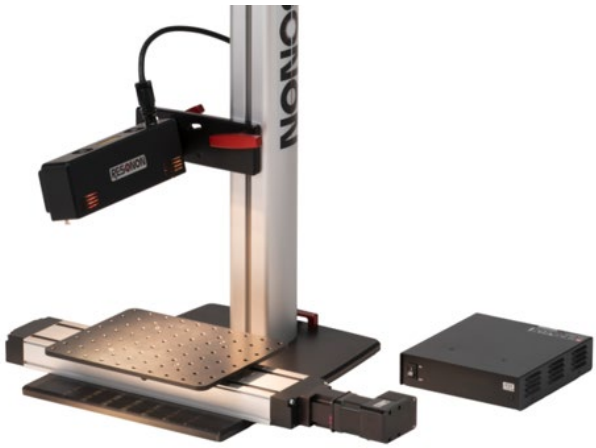

Figure 1. Benchtop Reflectance system with 6-Fixture Halogen Light.

Fiber Line Light

- Produces a narrow line of light at a small range of incident angles
- 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
- **Can be used for VNIR and NIR imagers**

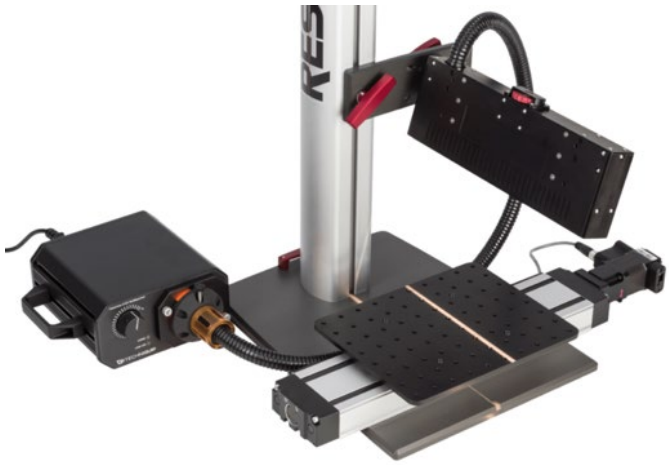

Figure 2. Benchtop Reflectance system with Fiber Line Light.

VNIR Hyperspectral LED Line Light

- Very bright, diffuse, and stable
- Provides light between 405 nm and 970 nm (not usable in applications that require signal outside that range)
- Low heat generation and long-lifetime
- **Can only be used with VNIR imagers**

Figure 3. Benchtop Reflectance system with the Hyperspectral LED Light.

IR Hyperspectral LED Line Light

- Very bright, diffuse, and stable
- Provides light between 940 nm and 1680 nm (not usable in applications that require signal outside that range)
- Low heat generation and long-lifetime
- **Can only be used with IR imagers**

Note, the IR Hyperspectral LED Line Light appears identical to the VNIR LED Line Light shown in Figure 4.

Spectral differences between the lights can be seen in the plots below:

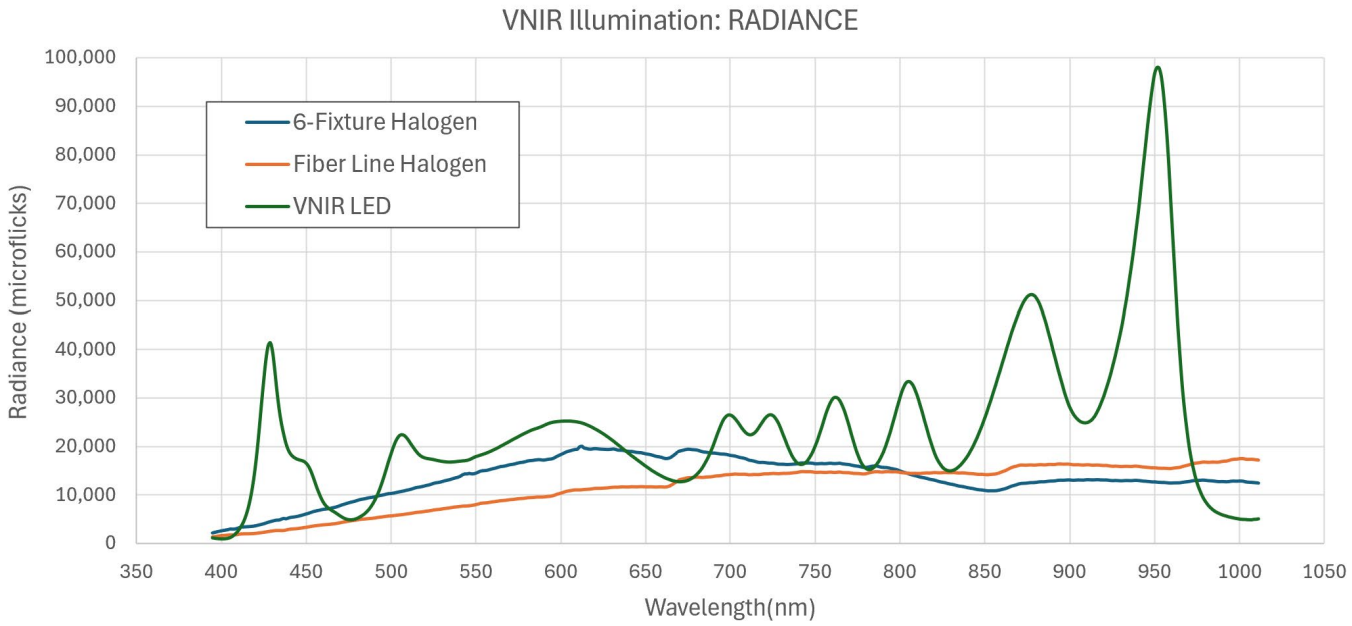

Figure 4: VNIR Illumination: Light output in at-sensor radiance (units of microflicks)

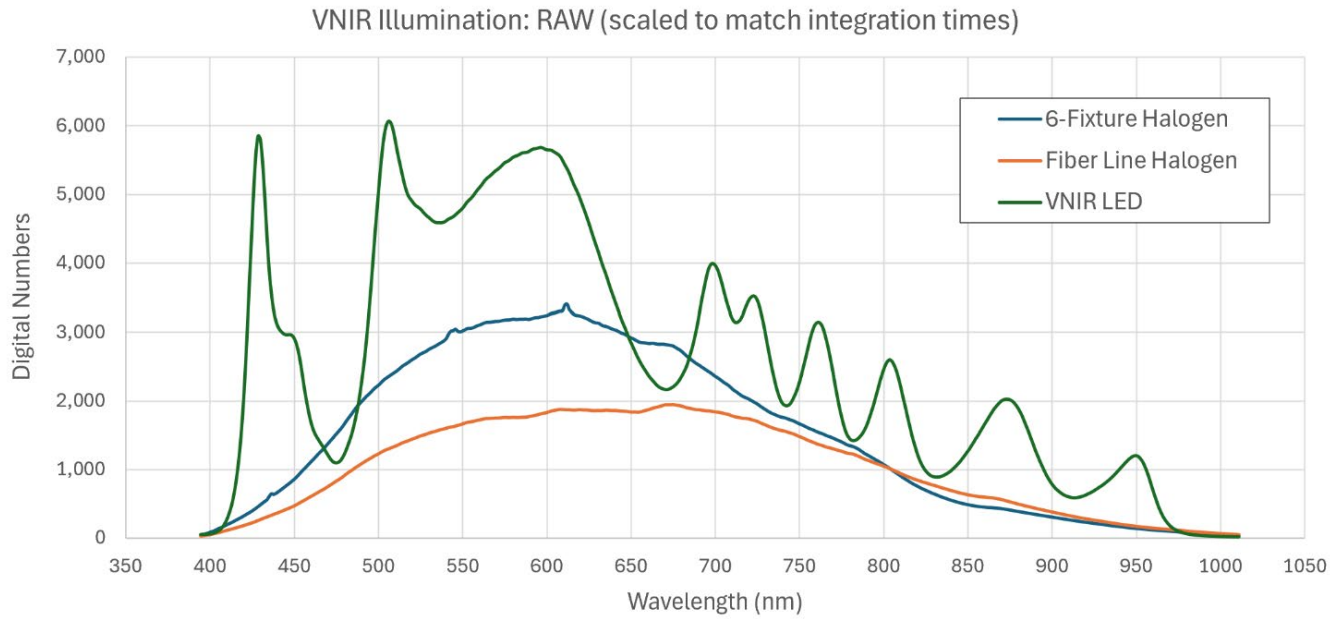

Figure 5: VNIR Illumination: Raw Data in digital numbers from Pika XC2 imaging a white reference tile (data scaled to match integration times)

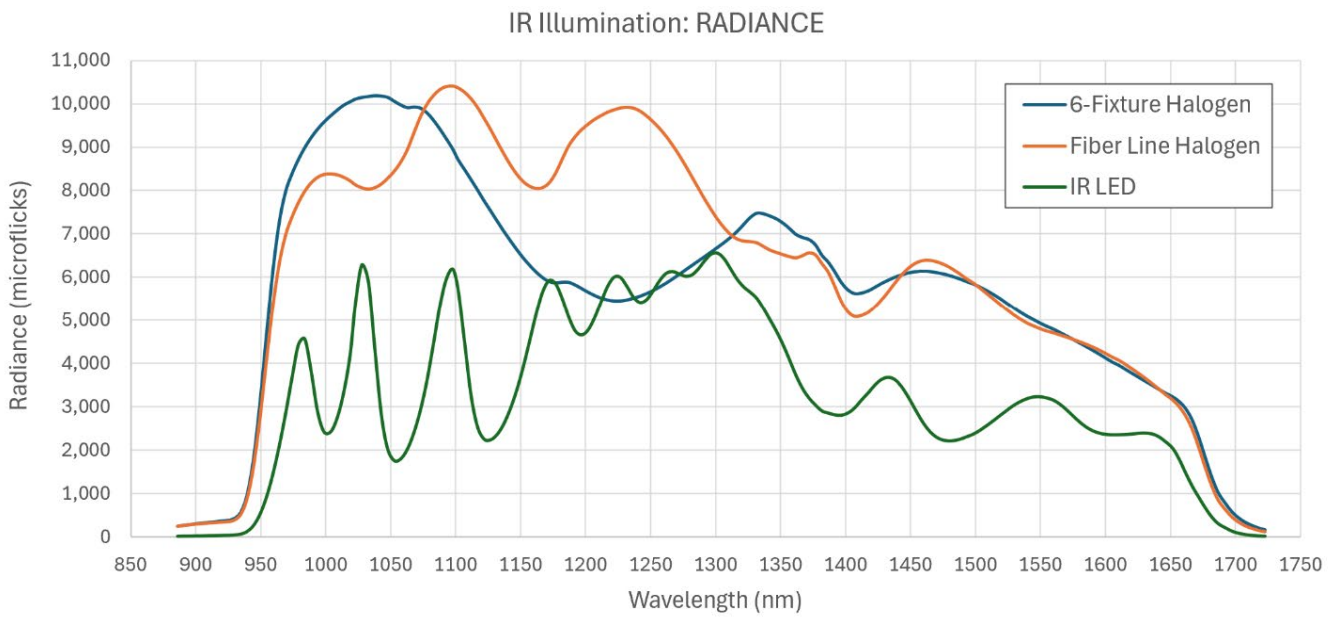

Figure 6: IR Illumination: Light output in at-sensor radiance (units of microflicks)

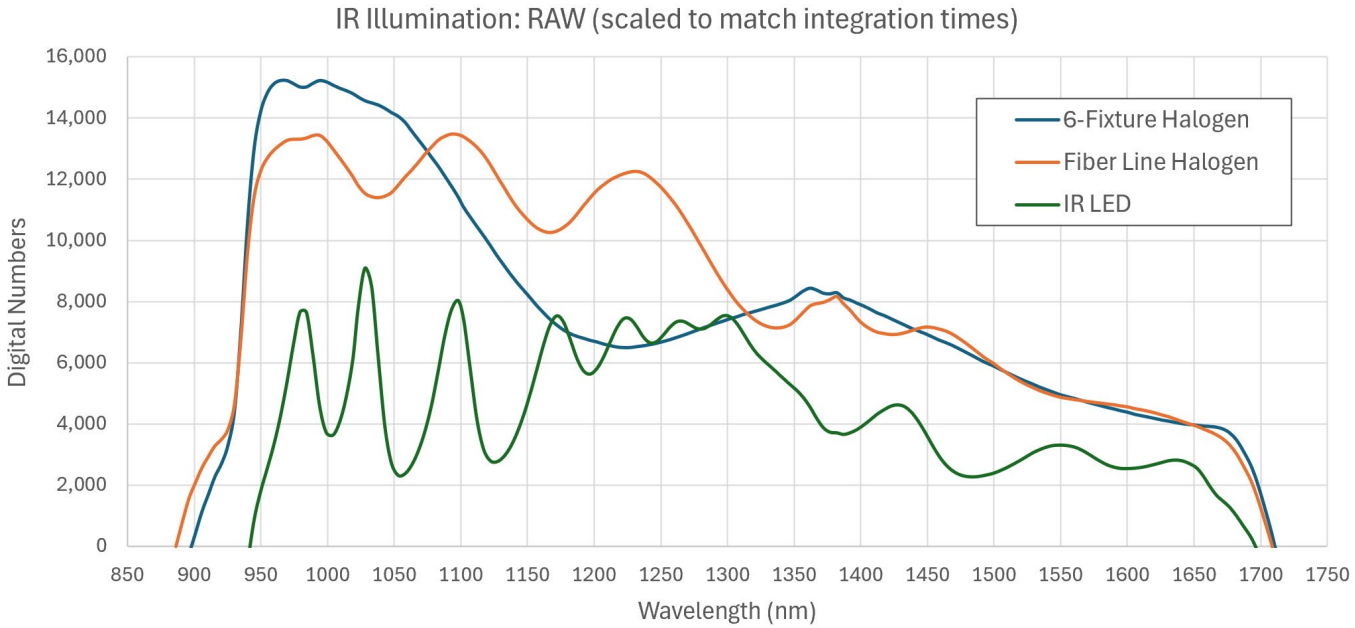

Figure 7: IR Illumination: Raw Data in digital numbers from Pika IR imaging a white reference tile (data scaled to match integration times)

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