

# LuminTec™ Light Line Illumination System for Microfilm Scanners

**White Paper  
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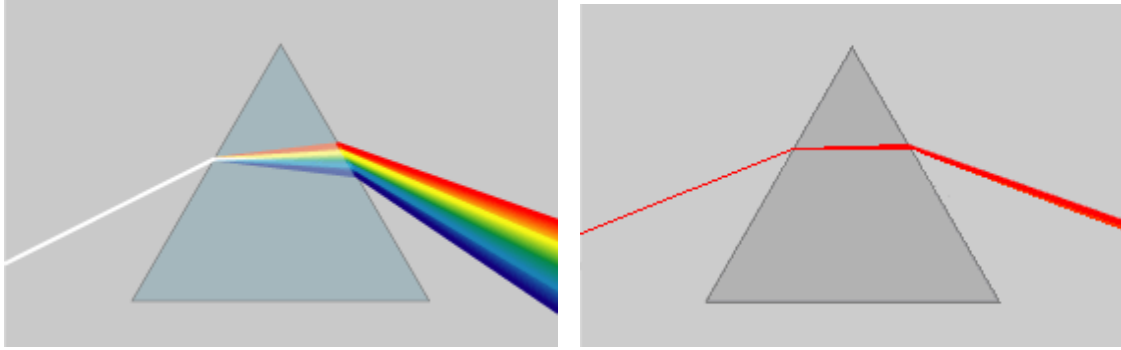
## **Introduction**

This white paper details a new Light Line Illumination System being introduced by nextScan, Inc., called LuminTec™. LuminTec significantly increases image clarity (a benefit that can typically only be obtained by increasing the dpi during scanning), without increasing image file size or losing any capture speed.

During the normal scanning process, the source film-based image is moving during the time that each scan line is being captured. This movement is similar to the photographic process of taking a picture of a moving object. If a low shutter speed is used, the picture is blurry. For the process of scanning, this blurring is on a per-scan-line basis, and results in less than optimum image resolution. This reduction in image resolution can be as much as ½ in the scanning axis, because two pixels are being combined during the scan time of a single pixel.



The light produced by LuminTec is nearly monochromatic, meaning it contains only a single color. This helps the lens resolution because color correction deficiencies of the lens will not matter. For example, think of a prism and how it breaks up white light into the color of the rainbow. This same effect happens in all lenses that have to deal with “white” light, which contains all visible colors. This spreading of the colors contained in white light causes individual pixels to be blurry. In the example below, a single pixel of white light enters the prism and is spread into its component colors which may cover several pixels. This is especially true of microfilm media, with its high reduction ration and small pixel spot size.



## End Benefit

In the end, the nextScan new Light Line Approach yields the following benefits:

- Sharper image in both axes due to narrow band emissions resulting in less color spectrum correction needed from the lens
- No infrared emissions to blind the CCD/CMOS Imager
- 100,000 hour Mean Time Between Failure (MTBF) vs. 2000 hour for incandescent systems
- 1/10 the power consumption and thus heat generation of incandescent illumination systems, resulting in higher MTBF of the scanner as a whole
- Sharper images that lead to increased OCR accuracy