INTRODUCTION TO VISION SENSORS

THE CASE FOR AUTOMATION WITH MACHINE VISION

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Of the billions of products manufactured and inspected each day, few could be made without some level of industrial automation. Modern manufacturing demands high quality control standards. Manual inspection is slow, prone to error, and impeded by product size, space constraints, lighting conditions, and fast production line speeds. Automated inspection, by contrast, maximizes throughput, increases quality, and lowers manufacturing costs.

Most manufacturers use automated machinery like sensors because they are well-suited for repetitive inspection tasks. Sensors are faster, more objective, and work continuously. They can inspect hundreds, or even thousands, of parts per minute, providing more consistent and reliable inspection results.

But all sensors are not created equal. Low-cost photoelectric sensors can perform only a limited number of simple tasks, such as position verification and basic counting. They cannot distinguish between patterns or colors. And with their rigid mounting setup, they cannot handle misalignment or variability common in most work cells. Vision sensors offer greater flexibility, perform multiple inspection types within a single image, and generate additional rich data for quality and process improvement.

This 6-part guide provides an introduction to vision sensors and their common applications in factory automation. It is designed to help manufacturers determine whether vision sensors are right for them, and if so, to help them identify their needs.