omniQ

Machine Vision Solutions for Manufacturing

Automating Processes, Traceability and Visual Inspections with Zebra Technologies

ZEBRA

Manufacturers around the world use Zebra machine vision technologies to automatically scan, capture and analyze images to help them streamline key production processes, enable end-to-end traceability, and perform sophisticated visual inspections with machine accuracy and digital automation.

By installing Zebra fixed industrial scanners and machine vision sensors on key production and packaging lines as well as robotic workstations, companies are able to automate numerous processes, including:

- Component, assembly and finished goods traceability
- 1D/2D barcode, DPM and text scanning
- Routing, sorting, counting
- Assembly and subassembly checks
- Label and packaging checks
- Inspections for defects and non-conformity
- Measurements, edge detection and presence/absence checks
- Adding "eyes" and vision capabilities to manufacturing robot

In this quick overview, we'll take a look at how Zebra machine vision technologies automate these and other processes and how they do it with a revolutionary new approach to industrial automation that simplifies job setup and makes it far easier and more affordable for manufacturers.

A Revolutionary New Approach to Industrial Automation

Zebra industrial automation enables both fixed industrial scanning and machine vision from a single plug-and-play hardware platform and one easy-to-use software application.

Each sensor is a compact yet rugged industrial device that can be placed virtually anywhere, even in the tightest spaces. It can be connected to industrial networks and systems with support for all leading industrial communication protocols. Each device is also a fixed industrial scanner and a machine vision sensor, so you get both capabilities from a single piece of hardware.

Additionally, there is just one simple software application to set up all scanning and machine vision jobs, with a modern interface that's as easy as using a few sliders, radio buttons, and drop-down menus to configure each job.

Fixed Industrial Scanning Capabilities

Automated and Reliable Data Capture

- Capture 1D/2D barcodes, DPMs and text
- Capture multiple barcodes simultaneously
- Get high read rates of 60 frames per second

Manufacturing Traceability

- Trace parts, components, subassemblies, assemblies and finished goods
- Track virtually any asset on the move with high-speed precision
- Confirm label data with smart camera capabilities

Machine Vision Capabilities

High-Quality Image Capture

- Wide range of sensors from 1 to 5 megapixels
- External or modular integrated lighting
- Liquid lens technology or a wide range of C-Mount lenses
- ImagePerfect capture of multiple images, each with its own setting
- Wavelength, bandpass and polarizing filters

Sophisticated Image Analysis

- Instantly detect and capture defects before they move downstream
- Automatically analyze components, assemblies or finished goods
- Inspect images for presence/absence, pattern matching, and edge detection
- Analyze color, conformity, uniformity, shape and more
- Measure, count, route and sort items at high speeds based on captured images
- Apply deep-learning OCR tools to inspect and analyze characters and text

Manufacturing Applications and Use Cases

High-Speed and Multi-Code Scanning

Read 1D/2D barcodes, DPMs and multiple barcodes on high-speed lines, at long range, at difficult angles, on multiple sides.

Traceability and Process Automation

Count, route, sort, verify and trace products to automate and error-proof your supply chain with precise accuracy.

Assembly Checks

Scan barcodes or DPMs or analyze images to ensure the right components are present and assembled correctly.

Foreign Material or Contamination Detection

Use contrast inspection to automatically detect and identify defects or foreign material in parts or goods.

Cosmetic Defect Detection

Detect scratches, cracks, bubbles, color degradation and other issues on rough, textured metal, and other surfaces.

Label Quality Inspection

Check for label presence/absence, print quality, position, orientation, attachment, dates and lot codes, and more.

Packaging Checks

Ensure the correct goods go in the right packages, and inspect packaging for print quality, info and dates.

Package Seal Inspection

Inspect for tamper-proof and safety seals, and detect when product variations might cause packaging issues.

Bottle Cap and Fill Inspection

Verify fill levels, bottle cap height and skew, distance between cap and bottle neck, and proper cap screwing.

Assembly and Kitting Checks

Check for kit component presence and verify that packaging inserts or leaflets are included.

Robotic Applications

Use machine vision sensors as the "eyes" for your robots, enabling more accurate, precise and intelligent automation.

The Zebra Fixed Scanning and Machine Vision Portfolio

Zebra industrial automation devices capture and analyze sophisticated hi-res images as well as the latest barcoding symbologies and DPMs. Zebra's ImagePerfect captures up to 16 images of a single item, each with its own settings. You can choose from a wide range of sensors from 1 to 5 megapixels.

Easily Upgrade from Fixed Scanning to Machine Vision

With Zebra's FS20, FS40 and FS70 devices, you can start with a fixed scanner and later convert it into a machine vision smart camera with a simple software license upgrade. There is no additional hardware to buy.

FS10 – Plug-and-Play Scanning
Plugs into the USB port of a workstation, laptop, tablet or other host device

FS20 – Easy Network Integration
Multiple connectivity options to facilitate easy integration into your PLC or Host network

FS40 – Comprehensive Features and Flexibility
Flexible options for decode range, illumination, connectivity, power and much more

FS70 – Fully Customizable Scanning
Choose from four image sensors and a wide range of C-mount lenses and lighting options.

VS20 – Anywhere Integration
Compact fits-anywhere device that integrates easily into your PLC or Host network

VS40 – All-in-One Machine Vision
Choose from standard and wide-angle field of view, liquid lens options, built-in filters, and multiple illumination, power and connectivity options.

VS70 – Completely Customizable
Choose from four image sensors and a wide range of C-mount lenses and lighting options.

Zebra Deep-Learning OCR

Zebra machine vision sensors don't just scan codes or capture and analyze images. They also come equipped with optical character recognition (OCR), so you can automatically recognize and extract text and information from images without font or text training.

Zebra's Deep-Learning OCR uses AI, machine learning, and advanced algorithms to quickly learn and adapt to your OCR needs and provide accurate, reliable reads, even when dealing with extremely difficult characters, low contrast, or confusing backgrounds.

No Text or Font Training
Get reliable and accurate reads without training.

OCR for the Toughest Jobs
Read low-contrast characters against confusing backgrounds.

Amazingly Simple
Extract info as easily as drawing a box around an image.

Deep-Learning Automation
Let the software do the work with drag-and-drop simplicity.

Available with Zebra Sensors and Aurora Software

Zebra's new Deep-Learning OCR is part of Zebra's Aurora software, which allows you to quickly set up highly accurate text and character recognition in a fraction of the time that's required with other solutions. In fact, even a novice user can get an OCR job up and running in as little as a few minutes.

Modern, Simple and Easy-to-Use Solutions

Until now, fixed industrial scanning and machine vision solutions were often tedious and time-consuming to set up, often requiring multiple cumbersome software applications and sets of hardware. Now Zebra has reinvented machine vision with a singular hardware and software platform with fast and simple installation, setup, configuration and results.

Quick and Easy Hardware Deployment

- Plug-and-play hardware for simplicity
- Intuitive software with guided tutorials
- Easy-to-use with no expertise required
- Built-in or external lighting with multiple options
- Wide range of liquid lenses or C-mount lenses
- Push-button auto tuning of image capture

Complete Integration and Communication

- USB-C, Serial or Ethernet communication
- Support for EthernetIP, ProfiNet, CC-Link, ModBus and TCP/IP
- Fully customizable I/O
- Multiple ways to connect to power via 24VDC, USB-C or PoE

Everything in One or Two Clicks

Zebra's Aurora software provides a highly intuitive modern interface with logical workflows. You won't waste time hunting for needed features and functions. Everything just a click or two away, and even the most complex settings are presented as simple sliders and radio buttons.

Designed for Beginners and Experts Alike

First-time users can easily navigate through a well-designed software platform that guides them through all the steps in the proper order. Experienced users will appreciate easy access to all functions and to streamlined processes that substantially reduce the time and number of clicks it takes to perform tasks.

Built-in Help at Every Step

If you have questions, Aurora's Learn-As-You-Go has the answers. There are built-in tutorials, walk-throughs and videos on all aspects of the software and its comprehensive toolset.
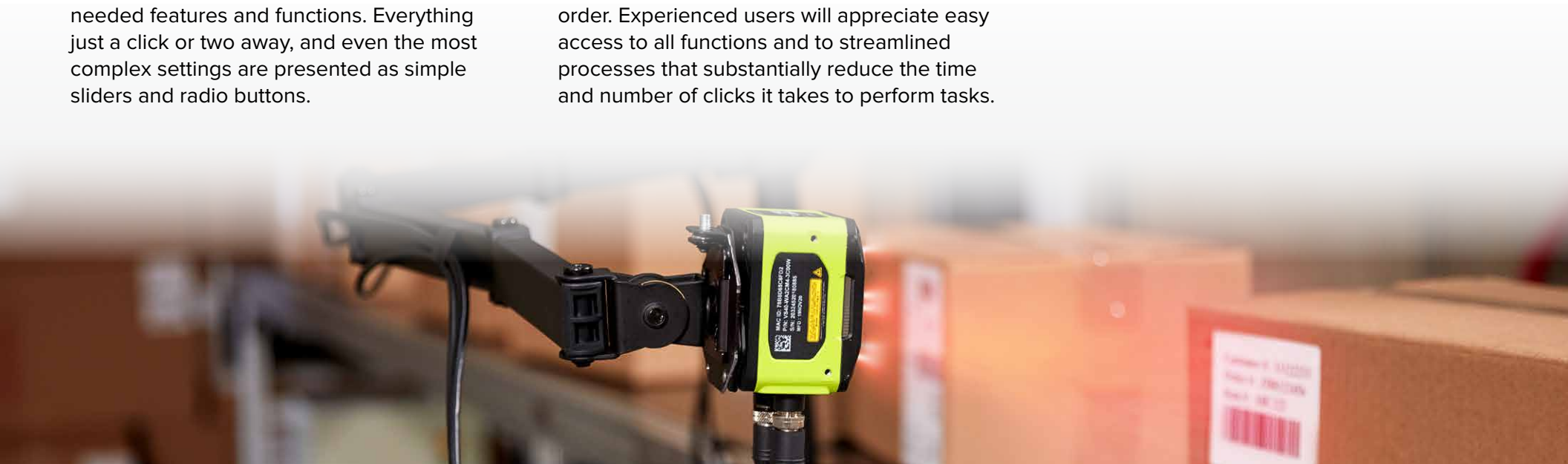
Start Automating Your Processes and Inspections.

At OmniQ, we have deep experience in recommending and designing machine vision, data capture, automation and mobile computing solutions for some of North America's leading manufacturers. To learn more about boosting high-quality output with Zebra machine vision and our other technology and software solutions, contact us now to see how omniQ and Zebra Technologies can help your business.

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