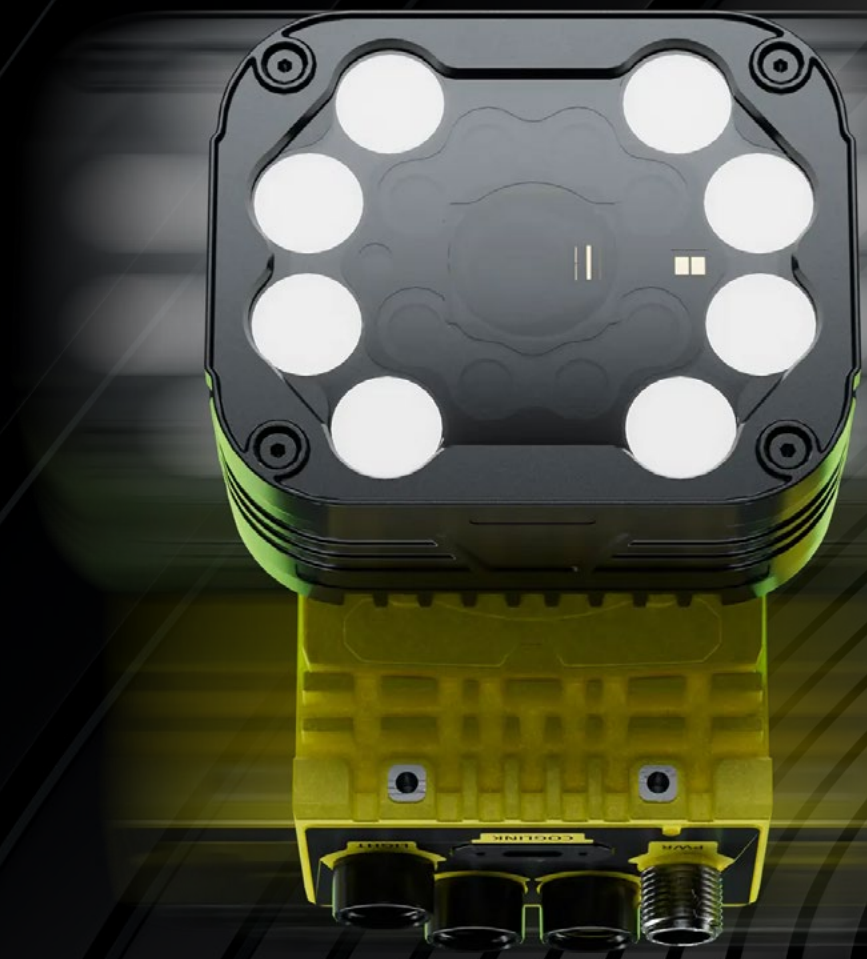
COGNEX

Advanced machine vision made easy

Machine Vision Product Guide

Vision Systems and Sensors
Accessories
Vision Software



Advanced machine vision made easy



The world's leading provider of vision systems, sensors, and software for industrial automation

Cognex brings the power of machine vision to factories and warehouses everywhere, helping manufacturers and logistics providers automate processes, improve quality, and maximize efficiency.

Our solutions detect defects, read barcodes and text, guide robots, and track, sort, and identify parts and products, streamlining production and distribution.

With a longstanding focus on AI, Cognex delivers unmatched performance that's easy to deploy, enabling factories and warehouses to work smarter, move faster, and achieve higher quality at every step.

45 years in business

25K+ global customers

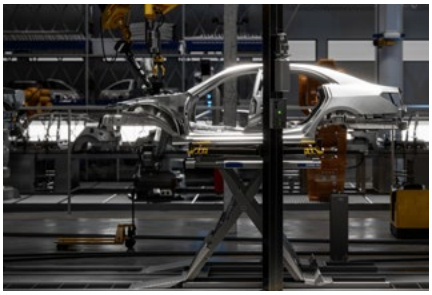
500+ global customer support resources

1,350+ technology patents

cognex.com

Automation for Every Industry

Cognex machine vision and barcode reading solutions enable companies worldwide to reliably automate production tasks and track and trace assets across a wide range of industries and applications.



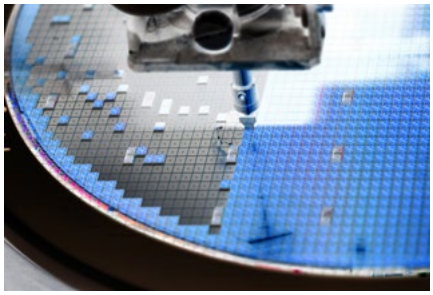
Automotive & EV

- Powertrain
- Tire and Wheel
- Safety Systems
- Chassis
- EV Battery
- Parts Traceability



Consumer Products

- Material Handling
- Automated Assembly
- Packaging Inspection
- Filling
- Labeling and Marketing
- Distribution



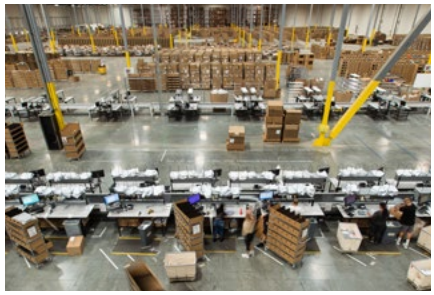
Electronics

- Semiconductors
- LED Manufacturing
- PCB Assembly
- Electronic Hardware
- Consumer Devices



Food & Beverage

- Product Quality Inspection
- Packaging Inspection
- Assembly Verification
- Allergen Management and Traceability
- Warehousing and Distribution



Logistics & Warehouse Operations

- Inbound Logistics
- Order Fulfillment
- Sortation
- Outbound Logistics



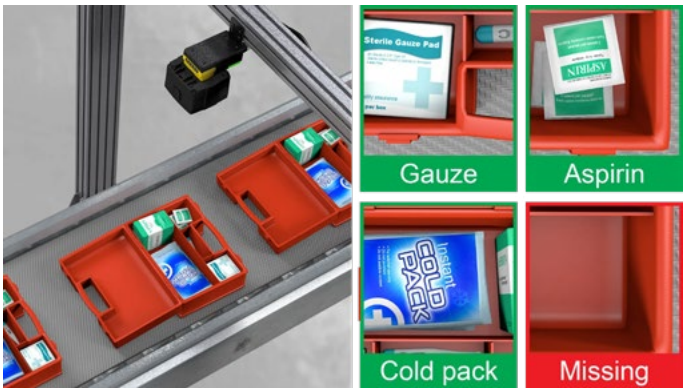
Pharmaceutical & Medical

- Medical Device Solutions
- Vials and Vaccines
- Tablet and Capsule Manufacturing
- Pharmaceuticals Protection
- Allergen Management and Traceability
- 21 CFR Part 11 Support

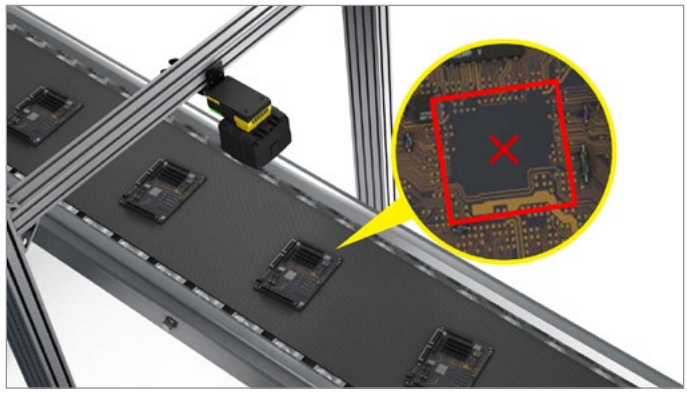
Vision Sensors and Systems

Over 1 billion products are made every day using machine vision. Cognex vision sensors and systems perform highly-detailed inspections at every stage of manufacturing to optimize quality, minimize waste, and maximize throughput.

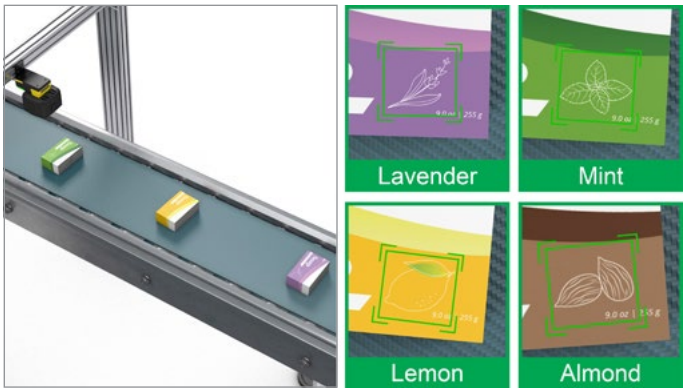
Application examples



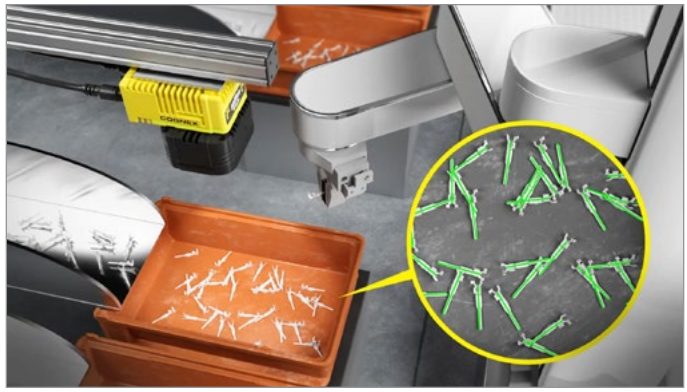
Assembly Verification: Ensure correct assembly by confirming the presence, placement, and orientation of all components.



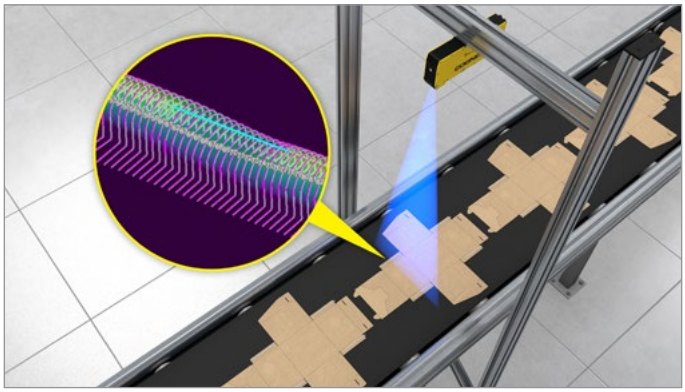
Defect Detection: Detect defects by finding inconsistencies, gaps, and irregular patterns.



Sortation and Classification: Identify and classify parts or products based on shape, size, color, and markings.



Guidance and Alignment: Locate parts in feeder bins to automate robotic pick-and-place, even with variable part positioning.



Measurement: Capture precise measurements of parts or features, including dimensions, distances, and angles.



OCR: Read text and barcodes on labels, product packaging, and shipping materials.

AI-Powered Vision



In-Sight 3900 Series

The highest-performance AI vision system

Run high-throughput, high-resolution inspections at full production speed.

cognex.com/in-sight-3900



In-Sight 8900 Series

Ultra-compact vision system

Automate defect detection and track-and-trace in confined spaces while ensuring regulatory compliance.

cognex.com/in-sight-8900

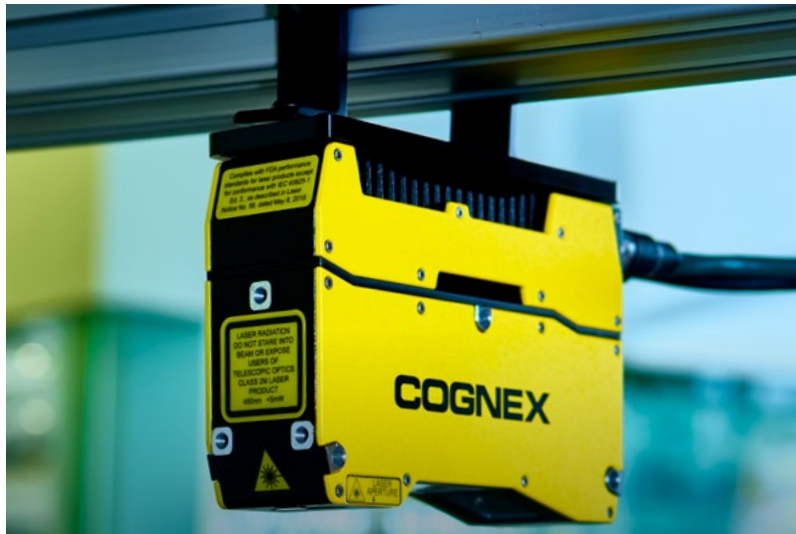


In-Sight 6900 Series

Modular AI vision controller

Customize setups, run advanced AI models, and handle complex workloads for the most demanding industrial applications.

cognex.com/in-sight-6900



In-Sight L38 Series

AI-powered 3D vision system

Perform advanced inspection, measurement, and guidance tasks with high accuracy.

cognex.com/in-sight-l38



In-Sight SnAPP

Easy-to-use vision sensor

Quickly solve simple quality and process control tasks with no experience needed.

cognex.com/snapp



In-Sight 2800 Series

General purpose vision system

Automate a range of standard inspection applications in minutes.

cognex.com/in-sight-2800



In-Sight 3800 Line Scan

High-speed line scan

Solve demanding vision applications on continuous webs, cylindrical surfaces, large parts, and complex shapes.

cognex.com/in-sight-3800-line-scan



L38 with VisionPro and L68 Series

For more complex 3D applications

Solve challenging and customized tasks with high-speed processing and ultimate programming control.

Rule-Based Vision

Cognex traditional, rule-based vision systems detect user-defined features or patterns, such as shape, color, size, or position, to perform reliable inspections. They offer high-speed processing and consistent results for controlled manufacturing environments.



In-Sight 7000/8000/9000 Series

Speed and accuracy for predictable applications

Automate well-defined tasks with reliability and efficiency.

Powerful, Scalable Vision

The In-Sight portfolio provides a consistent user experience by integrating hardware and software into a single, future-proof platform.



`In-Sight Vision Suite`

Unified software architecture

The In-Sight Vision Suite provides a universal software foundation across the entire In-Sight product line. A standardized development environment simplifies deployment and enables manufacturers to scale quickly from basic inspections to complex, high-performance applications.

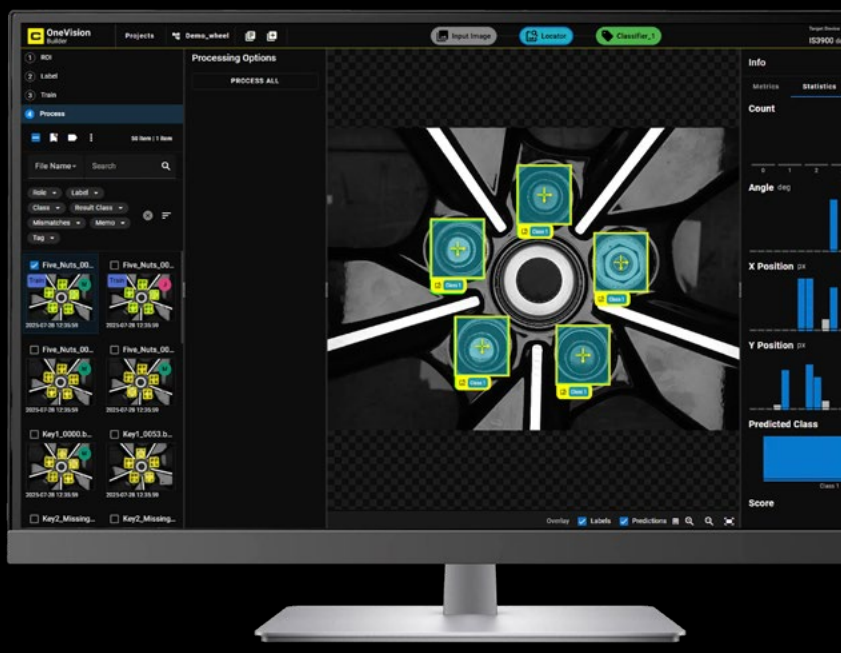
cognex.com/in-sight-vision-suite

`OneVision`

Advanced AI training and model management

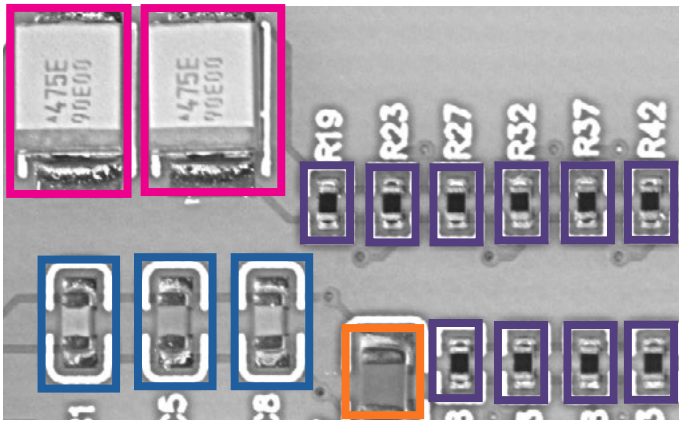
For complex applications, easily access OneVision, a collaborative AI development environment, for scaling and standardizing inspections across devices, lines, and sites.

cognex.com/onevision



The Right Vision Technology for Every Application

Cognex offers a continuum of machine vision technologies — from proven rule-based tools to on-device Edge AI and highly configurable Advanced AI — so manufacturers can match the right level of capability to each inspection.

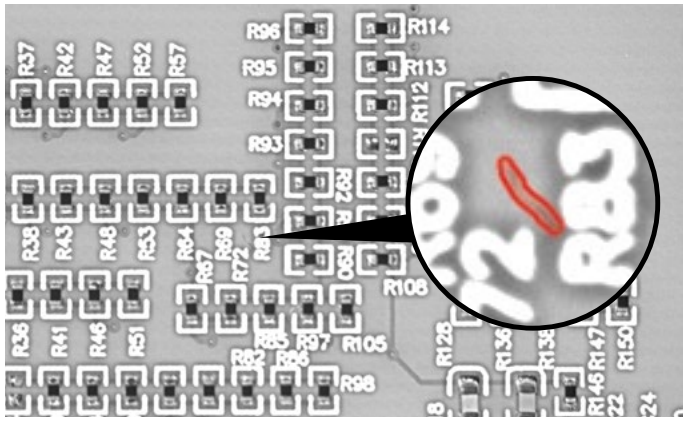


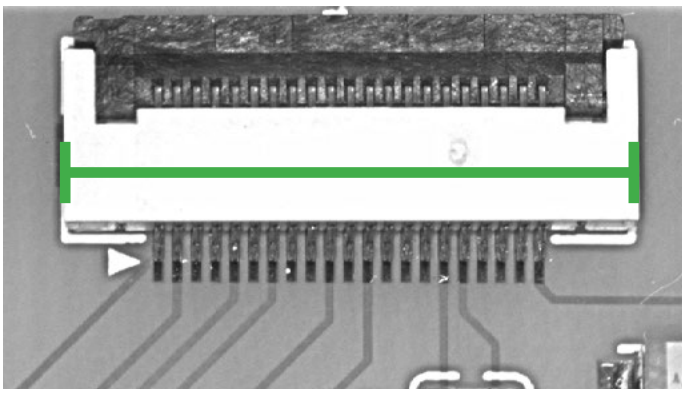
Edge AI tools

Designed for fast, simple deployment, Edge AI tools use pre-trained models and minimal training images to perform standard inspections such as defect detection, classification, assembly verification, and OCR.

Advanced AI tools*

Designed for customization and control, Advanced AI tools use configurable models and larger datasets to address complex inspections with high variability, subtle defects, and highly customized requirements.





Rule-based tools

A complete library of industry-proven, rule-based vision tools for precise, deterministic applications, including measurement, blob analysis, pixel count and pattern matching, 1D/2D code reading, robotic guidance, and math and logic.

*Available on OneVision-enabled models

Accessories

Cognex accessories optimize the performance of machine vision systems, so they can operate reliably and efficiently in a variety of manufacturing and logistics environments. These accessories include a range of lenses, lighting, and industrial cameras.

Lenses

The Cognex portfolio of lenses includes standard and telecentric options compatible with a variety of sensor sizes and resolutions. All lenses offer industry-proven performance, a compact design for easy integration, and customizable settings to support a variety of technical specifications.

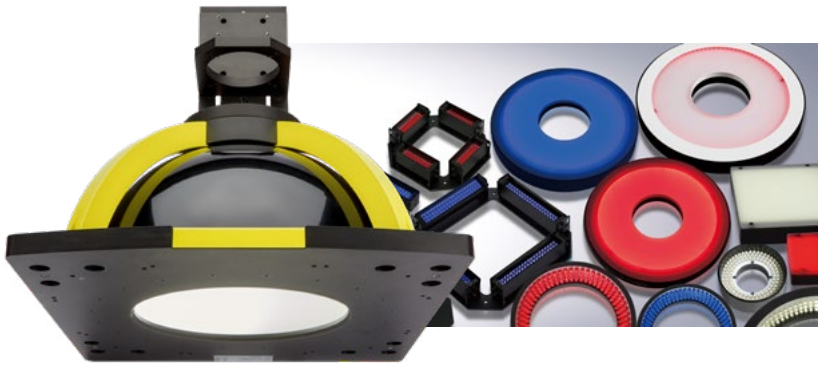
cognex.com/lenses



Lighting

Cognex lighting provides consistent, controllable illumination to ensure high-contrast, high-quality imaging for accurate measurement, alignment, and inspection.

cognex.com/lighting





Industrial cameras

Available in both area scan and line scan formats, Cognex industrial cameras offer seamless integration with PC-based vision software to provide a complete solution.

cognex.com/industrial-cameras



Frame grabbers

Cognex frame grabbers capture and quickly transfer large amounts of data from cameras to processing units. They ensure image data is accurately and efficiently acquired, making them essential in high-speed, high-precision applications.

Vision Software

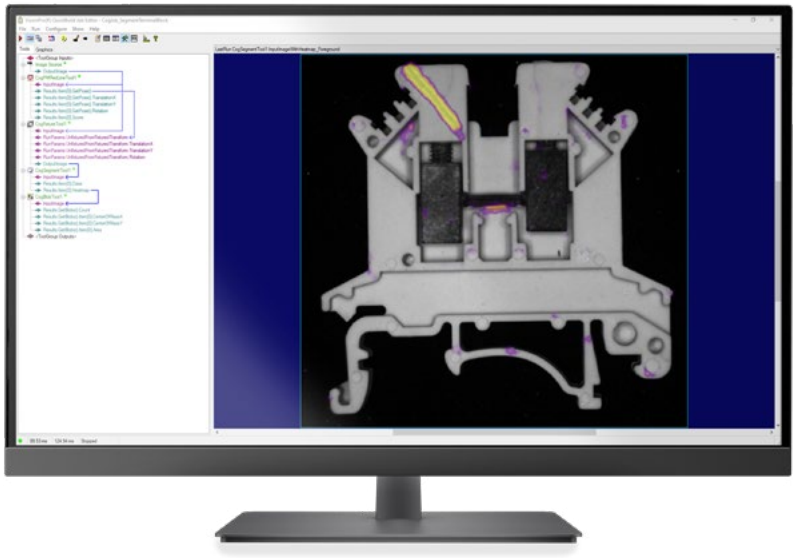
Cognex vision software provides the power and flexibility to solve the most challenging manufacturing applications. Available in several formats, including programmatic and graphical user interfaces, Cognex software offers direct access to the most robust vision tool libraries.

VisionPro

Ultimate programming control for complex tasks

VisionPro is a powerful PC-based vision software offering unmatched programming control for solving advanced and highly customized manufacturing applications and tasks that demand the fastest processing speeds.

cognex.com/visionpro





VisionPro Deep Learning

AI-powered image analysis for variable applications

VisionPro Deep Learning automates tasks that are too complicated and time-consuming to handle with traditional rule-based algorithms, making it an ideal solution for challenging inspections that require advanced AI-driven analysis.

cognex.com/visionpro-deep-learning

Empowering your success with end-to-end customer support

Cognex Customer Success

From personalized setup and training to expand your capabilities to continual learning and performance optimization, Cognex guides you at every step of your automation journey.

With Cognex Customer Success, you can focus on what matters most – delivering quality, innovation, and efficiency in your manufacturing process.

- **Plan & Deploy**
- **Run & Support**
- **Expand & Optimize**

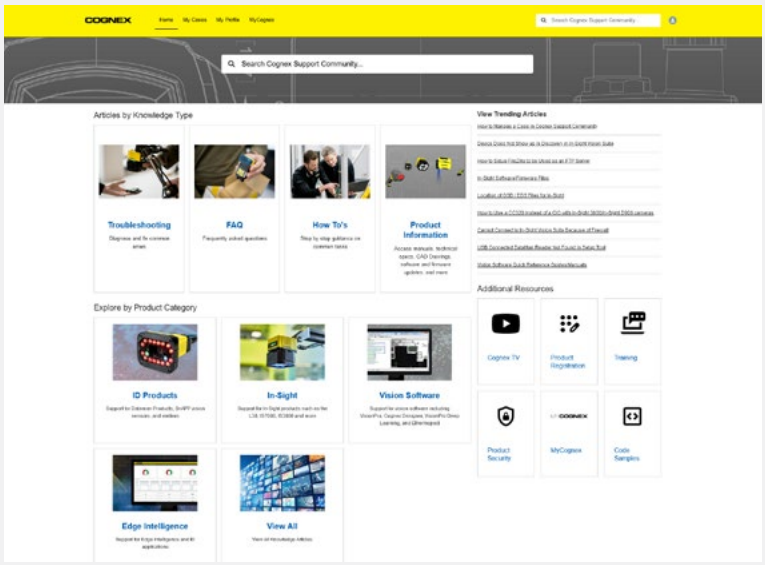
Plan & Deploy

- **Targeted guidance** to choose the right products and validate your deployment
- **Tuning and positioning guidance** built in
- **Curated documentation and videos** for configuration and setup
- **Image-based AI tools** for easy model training
- **Global partner network** when you need expert help



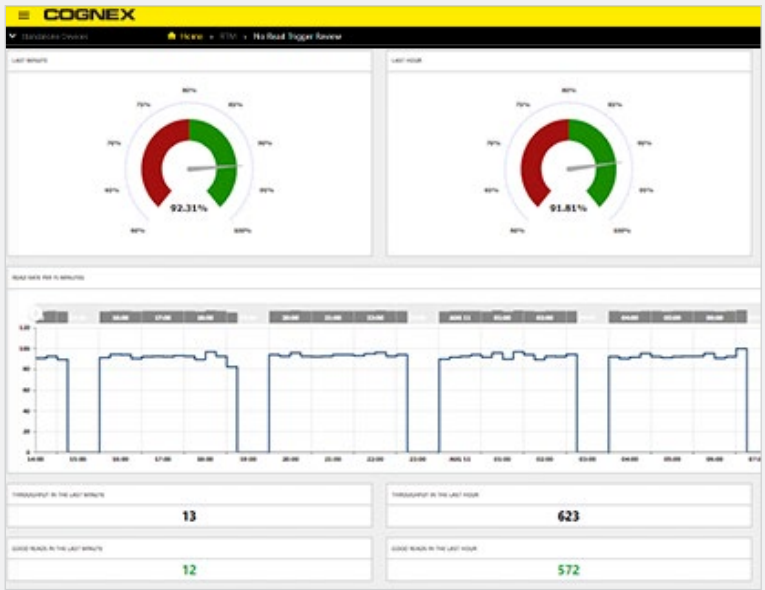
Run & Support

- **Connected tech support** flows seamlessly across email, text, WhatsApp, phone, and chat
- **Expert help and guidance** via visual remote assistant and easy online scheduling
- **Self-service training** to take you from beginner to expert, in multiple languages
- **Cognex support community** provides answers, real-time status updates, and transparent case tracking
- **Reliable, resilient products** made to stay running consistently, tolerate harsh environments, and be easy to adjust if needed



Expand & Optimize

- **Broad portfolio of products** with common tools and software, plus easy upgrade paths
- **Pre-built dashboards** that help you find performance insights across your entire operation
- **Management tools** to control settings across devices, lines, and plants
- **Out-of-the-box data sharing** makes it easy to connect to enterprise systems
- **Coaching from experts** with decades of experience to help you grow quickly and smoothly



Cognex Product Portfolio

Vision Systems and Software

Optimize inspection processes with Edge and Advanced AI, ensuring accurate defect detection, assembly verification, text reading, and more.

www.cognex.com/machine-vision



Barcode Readers

Achieve end-to-end traceability across production and distribution, with flexible AI-powered readers and verifiers designed for ease of use and reliability.

www.cognex.com/barcodereaders



Industry Solutions

Tackle applications across a wide range of industries with powerful AI machine vision solutions that simplify manufacturing and logistics challenges.

www.cognex.com/solutions



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