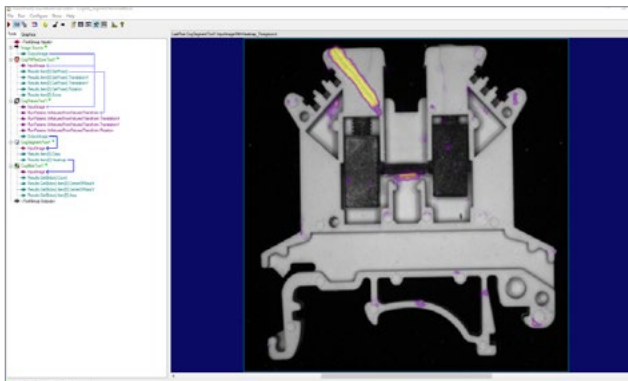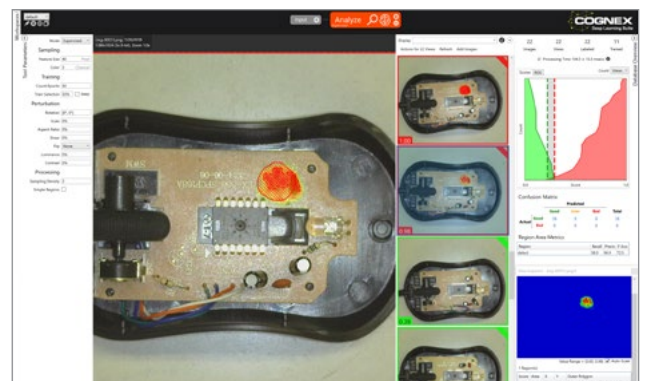# VISION SOFTWARE

For Factory Automation

COGNEX

BUILD YOUR VISION

Cognex vision software provides the power and flexibility to solve your most challenging machine vision applications in a PC environment. With easy integration and the choice of either a programmatic interface or graphical, point-and-click training, VisionPro® and VisionPro Deep Learning enable you to automate any task — on the camera of your choice.

VisionPro

VisionPro Deep Learning

Fast and flexible application development

Whether you need vision for inspection or for robotic guidance, Cognex vision software provides rule-based programming, hybrid smart tools, and deep learning capabilities in prototyping environments that support all modes of development.

Proven, reliable vision tools

A robust library of industry-leading pattern matching, alignment, inspection, ID, and optical character recognition (OCR) vision tools solve all of your vision application needs.

Complete hardware independence

With a wide range of camera types and acquisition technology, you have the flexibility to select the camera and frame grabber that's right for your application.

Powerful AI capabilities

Cognex offers two sets of AI-based vision tools: edge learning and deep learning. Edge learning tools, available on VisionPro software, are designed for simplicity and ease of use. With as few as 5 to 10 training images, users can deploy vision applications in minutes. For more complex applications, VisionPro Deep Learning offers advanced AI-based tools, capable of analyzing vast image sets to detect subtle, variable defects.
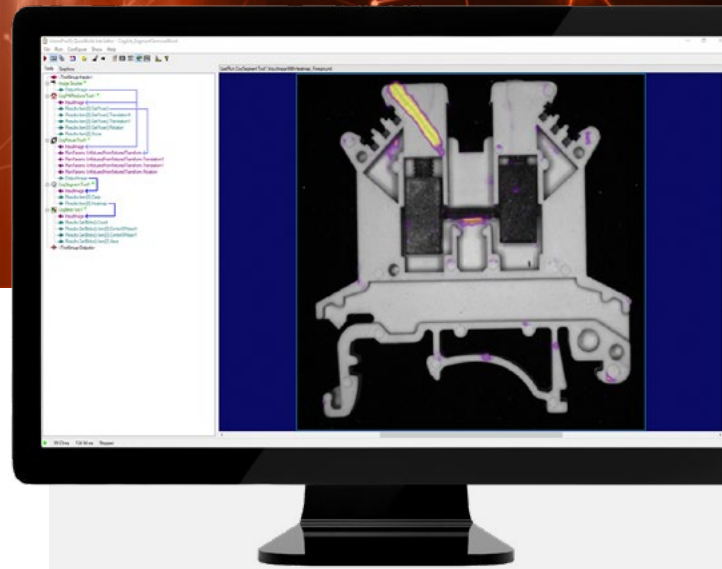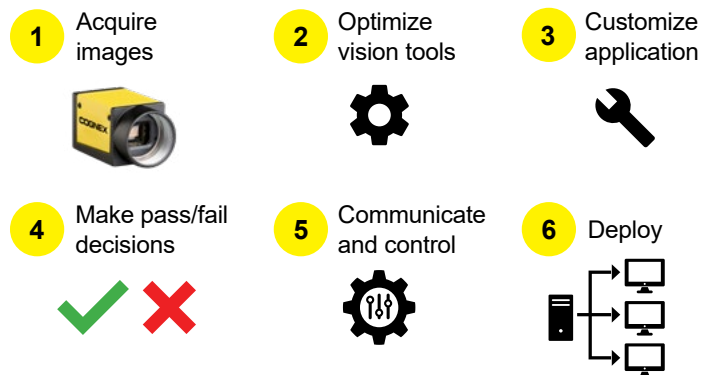
VISIONPRO

PC-based vision software for your most challenging vision applications

VisionPro combines industry-leading traditional vision tools with innovative edge learning technology in a graphical development environment. Users can leverage extensive tool prototyping and the flexibility of a programmatic API to rapidly build custom applications and support their most demanding vision needs.

QuickBuild environment shortens development time

VisionPro makes it simple to automate vision tasks with the QuickBuild prototyping environment. Using the intuitive graphical interface and point-and-click training, you can easily configure acquisition, select, and optimize tools, and make pass/fail decisions, with no prior programming experience required. Modular tools blocks enable users to quickly create and reuse components, further supporting fast and flexible deployment.

QuickBuild workflow

1. Acquire images
2. Optimize vision tools
3. Customize application
4. Make pass/fail decisions
5. Communicate and control
6. Deploy

Key benefits

Intuitive development environment and modular tool blocks
Graphical interface with drag-and-drop programming simplifies setup

Powerful edge learning technology
Easy to develop edge learning tools automate complex vision tasks in minutes

Industry-leading vision tools
Comprehensive set of rule-based and edge learning tools solves a broad range of applications

Performance optimization
Robust design accommodates multi-core and multi-threaded processors

The industry's leading vision toolset

Cognex vision software offers an extensive library of tools that addresses a wide spectrum of applications, from simple to complex. Industry-proven, rule-based tools offer reliable, highly accurate automation, while hybrid smart tools leverage the capabilities of both rule-based vision and deep learning.

ViDi EL tools

Using a set of pre-trained algorithms, ViDi EL tools make machine learning easier to use than ever.

ViDi EL Classify

ViDi EL Classify identifies and sorts parts based on multiple features or characteristics, enabling users to classify defects into different categories and correctly identify parts with variation.
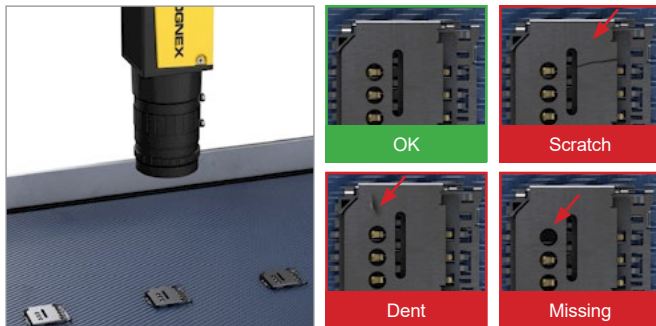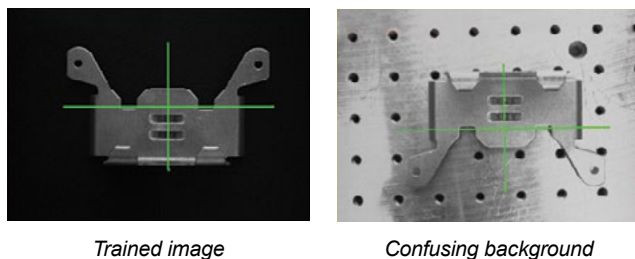

ViDi EL Segment

ViDi EL Segment separates desired pixels from background, enabling users to detect foreign objects, extract parts from a scene, and highlight defect areas.
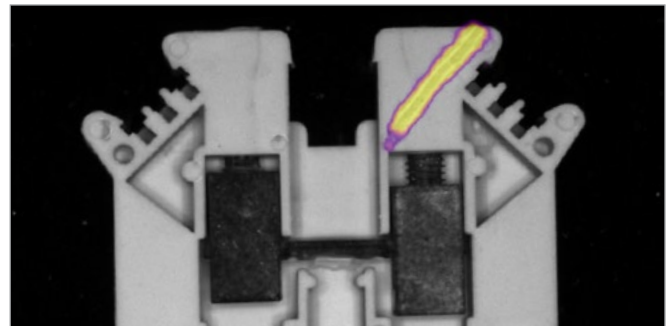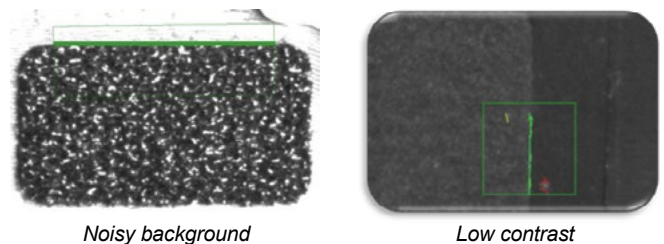

Rule-based tools

PatMax
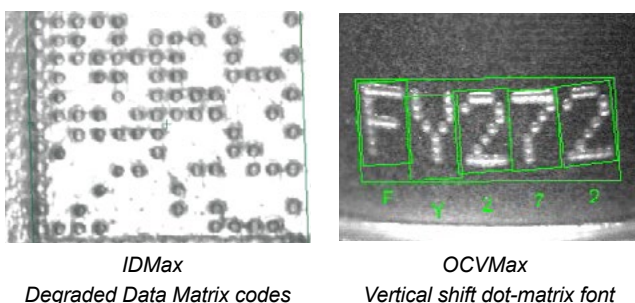
The industry standard for part and feature location.

Trained image   *Confusing background*

LineMax

Advanced line finding under low contrast and noisy conditions.

Noisy background   *Low contrast*

Identification and Verification

Optimized ID reading and character verification.

IDMax
Degraded Data Matrix codes

OCVMax
Vertical shift dot-matrix font

BeadInspect

Robust bead inspection locates glue beads on surfaces and detects defects.
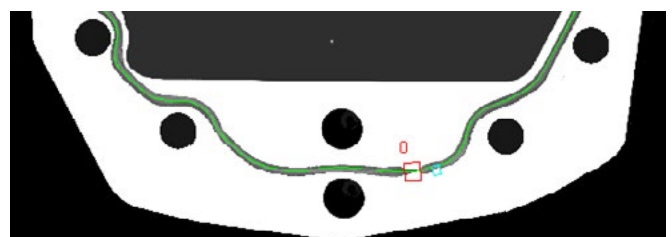
VISIONPRO DEEP LEARNING

Deep learning-based software for complex inspection, location, classification, and character recognition

VisionPro Deep Learning is a deep-learning based image analysis software that solves challenging applications. It automates tasks that are too complicated and time-consuming to program with rule-based algorithms, while providing a consistency and speed that aren't possible with manual inspection.

VisionPro Deep Learning tolerates natural variation and differentiates between acceptable and unacceptable anomalies to simplify development of highly variable applications including:

▪ Defect detection and segmentation

▪ Material classification

▪ Assembly verification and part location

▪ Character reading, including distorted print

Designed for factory automation

VisionPro Deep Learning is optimized for real-world industrial image analysis, requiring vastly smaller image sets and shorter training and validation periods. Non-vision experts can train applications and generate accurate results in minutes.
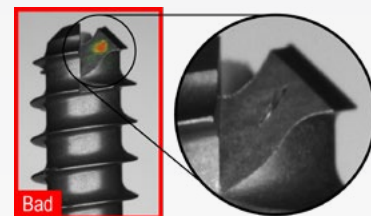
Unlike traditional, rule-based tools, VisionPro Deep Learning tools are trained by example. Choose between Blue Locate, Red Analyze, Green Classify, and Blue Read to choose/deploy the tools that's right for your application.
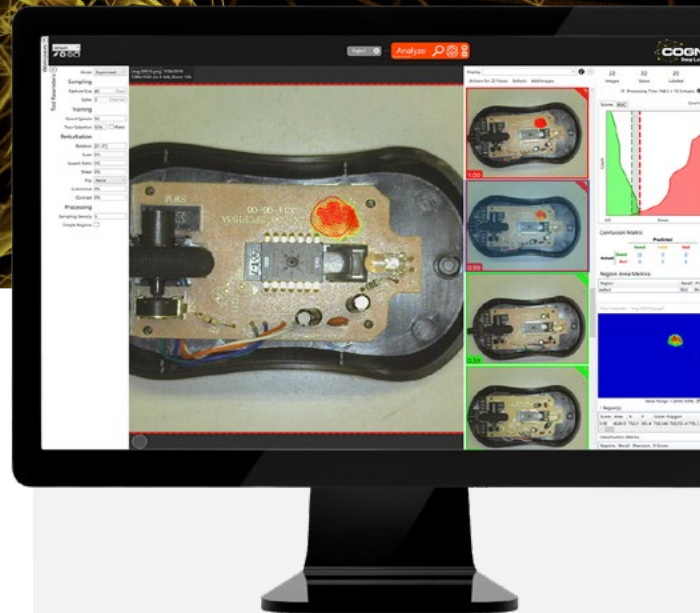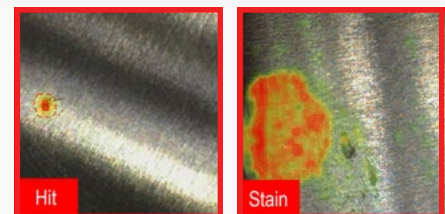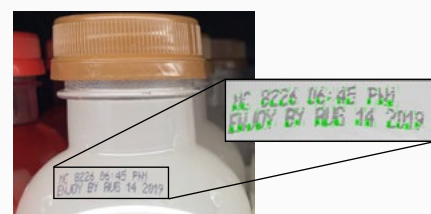
Locate — Finds and counts complex features and objects

Analyze — Detects anomalies and cosmetic defects

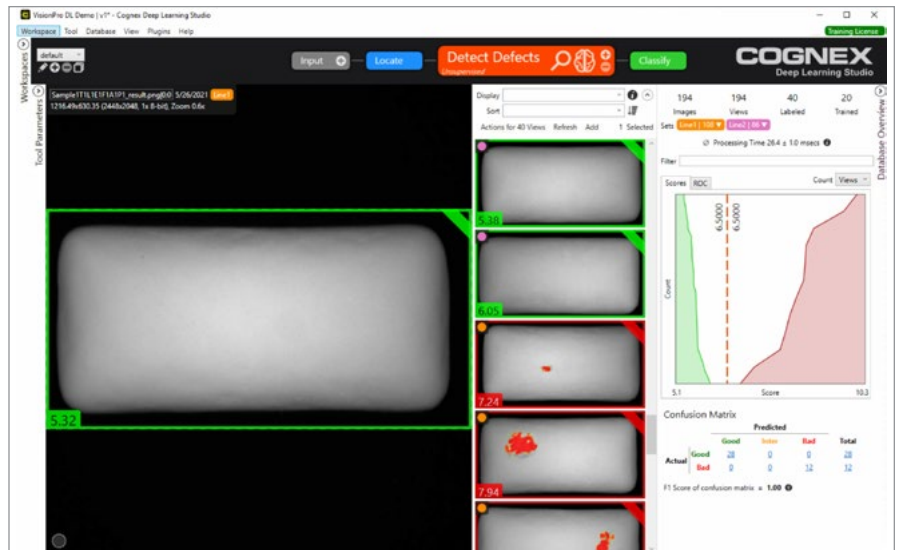**Classify** — Classifies and sorts objects and complete scenes

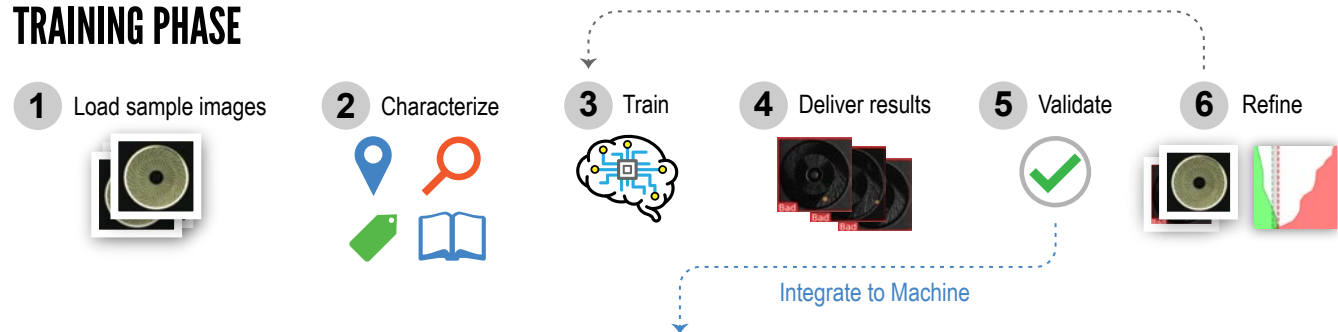**Read** — Reads challenging and deformed characters

Intuitive and graphical training

The graphical training interface within VisionPro Deep Learning simplifies the task of collecting images, training the neural network, and testing it on a variety of image sets. The unique tool-chaining capability lets users break down their problem into smaller steps, making it faster and easier to deploy applications.

Deep learning training process

TRAINING PHASE

1 Load sample images

2 Characterize

3 Train

4 Deliver results

5 Validate

6 Refine

Integrate to Machine

DEPLOYMENT PHASE

1 Acquire images

2 Analyze & interpret

3 Deliver pass/fail result

PASS   FAIL
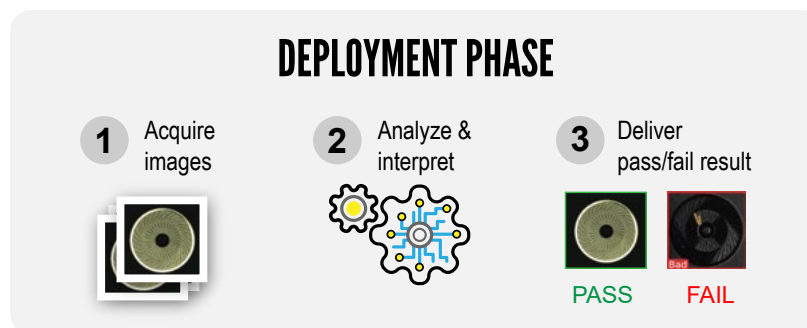
VISION ACCESSORIES

Cognex vision accessories easily integrate with VisionPro and VisionPro Deep Learning software. Choose from a wide selection of industrial cameras, frame grabbers, and I/O cards to build a solution that meets your application requirements.

Cognex Industrial Cameras (CIC)

Cognex Industrial Cameras are designed to easily integrate with Cognex vision software. These small, lightweight cameras in signature Cognex black and yellow show that your system has the leading machine vision technology inside.

GigE Vision Frame Grabber

The GigE Vision Frame Grabber supports PoE (Power over Ethernet) and provides four independent Gigabit Ethernet ports for multiple device connections. It is compatible with a range of cameras, from legacy systems to the latest vision technology, and enables simultaneous multi-camera acquisition.

CC24 I/O Card

The Cognex CC24 is an I/O integration card that connects to factory devices using industrial protocols. It is the recommended integration card for organizations building their own industrial PCs and deploying new vision applications.
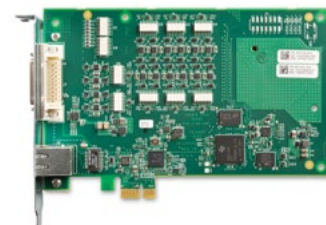
IPC5 Vision Controller

The industrial IPC5 offers high-speed parallel image acquisition and includes a rich set of discrete I/O and encoder inputs and networking capabilities for common factory protocols. This network-ready vision controller comes pre-installed with Cognex vision software and provides the flexibility to combine up to four area scan or line scan cameras.
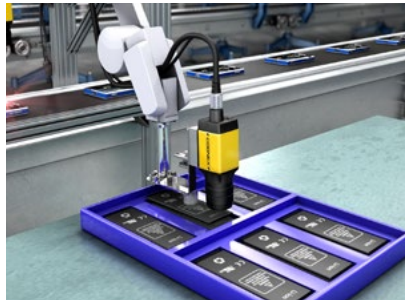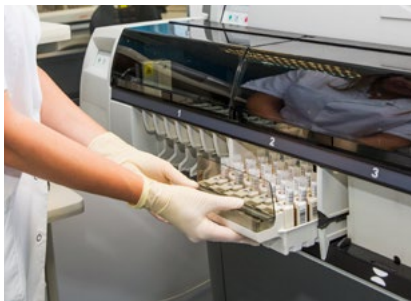
THE MOST
INDUSTRY EXPERIENCE
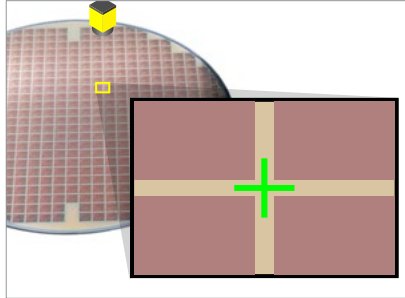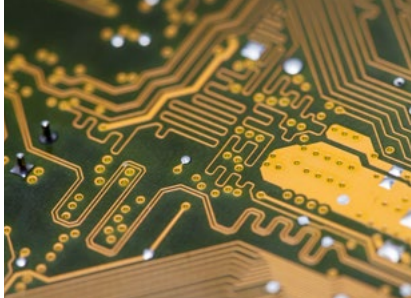
Semiconductor

- Wafer and die alignment
- Wafer and IC package ID
- Semiconductor and PCBA inspection
- Fiducial alignment

Consumer Electronics

- Pre-assembly component check
- Robot guidance and alignment
- Touch panel assembly and alignment
- Barcode reading

Medical

- Medical device ID and traceability
- Weld and adhesive inspection
- Surface defect detection
- Optical character recognition

Pharmaceutical

- Package and tablet inspections
- Safety seal presence and verification
- 1D, 2D, date and lot code reading
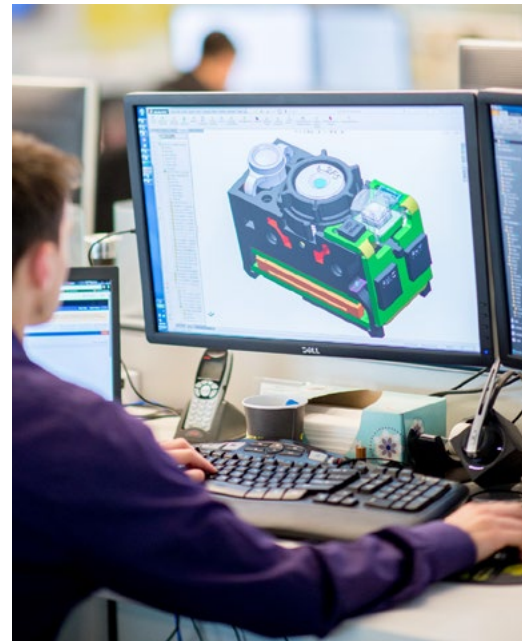- Label presence and verification

Automotive

- Part inspection
- Part orientation and presence detection
- Part and assembly inspections
- DPM code reading

COGNEX GLOBAL SERVICES

Technical Support ▪ Product Training ▪ Self-Service Portal ▪ Lifecycle Management

Cognex serves an international customer base from offices located throughout the Americas, Europe, and Asia and through a global network of highly-trained partners, system integrators, and distributors.

From development to deployment, Cognex is there to get your vision systems up and running as fast as possible. Whether you're considering machine vision for the first time or are already an expert user, Cognex global services provide the expertise to help your organization succeed.

www.cognex.com/support/cognex-services

Offices in **20+** countries

500+ Global partners in 30 countries

THE GLOBAL LEADER
IN MACHINE VISION AND BARCODE READING

For over 40 years, Cognex has helped the world's most innovative companies make their manufacturing and distribution faster, smarter, and more efficient.

Cognex vision systems and barcode readers help customers improve product quality and operational performance by eliminating defects, verifying assembly, and tracking information at every stage of the production process. Using data captured by Cognex vision systems and barcode readers, companies can monitor, update, and change production plans in real-time across global supply chains.

Smarter automation using Cognex products means fewer errors, which equates to lower costs and higher customer satisfaction. And Cognex is constantly applying new techniques, like artificial intelligence, to enable companies to evolve their automation strategy to meet today's and tomorrow's needs.

With a wide range of solutions and a large network of global vision experts, Cognex makes it possible to **Build Your Vision.™**

$1 BILLION
2022 REVENUE

OVER 42
YEARS IN THE BUSINESS

500+
CHANNEL PARTNERS

GLOBAL OFFICES IN
20+ COUNTRIES

4,000,000+
SYSTEMS SHIPPED

84370a38ZS

BUILD YOUR VISION

Vision Systems

Automate inspection tasks, from defect detection to assembly verification and text reading, with easy to deploy vision systems.

www.cognex.com/machine-vision

Barcode Readers

Track and trace, from the floor to dock door, with powerful readers and verifiers designed to handle any code type.

www.cognex.com/barcodereaders

Industry Solutions

Solve applications across a wide range of industries with flexible and reliable machine vision and barcode reading solutions.

www.cognex.com/solutions

Robovision
Machine Vision Experts

Main:
1st Kifisias str
56532 Thessaloniki, GR
T: +30 2310672436

Branch:
11th Meropis str
10441 Athens, GR
T: +30 2105157861

email: contact@robovision.gr | url: www.robovision.gr