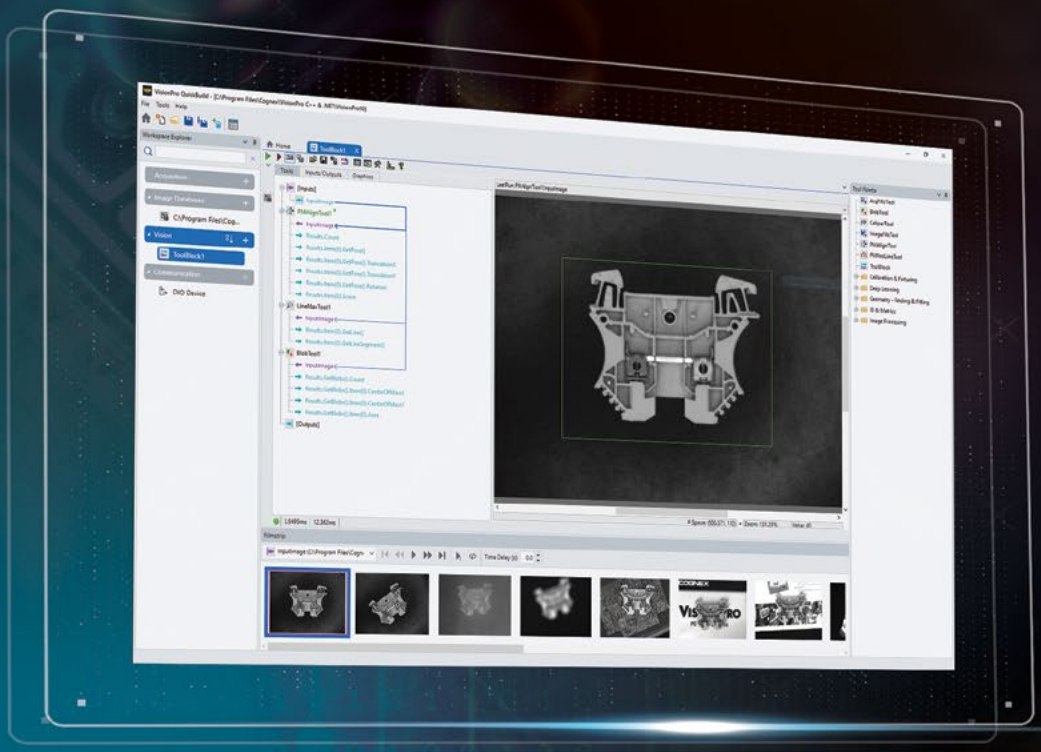




VISION SOFTWARE

FOR VISION APPLICATIONS

COGNEX

THE GLOBAL LEADER

IN MACHINE VISION AND INDUSTRIAL BARCODE READING

Cognex,® the leading supplier of machine vision and industrial barcode reading solutions.

With over 3.5 million systems installed in facilities around the world and over 41 years of experience, Cognex is focused on industrial machine vision and image-based barcode reading technology. Deployed by the world's top manufacturers, suppliers, and machine builders, Cognex products ensure that manufactured items meet the stringent quality requirements of each industry.

Cognex solutions help customers improve manufacturing quality and performance by eliminating defects, verifying assembly, and tracking information at every stage of the production process. Smarter automation using Cognex vision and barcode reading systems means fewer production errors, which equates to lower manufacturing costs and higher customer satisfaction. With the widest range of solutions and largest network of global vision experts, Cognex is the best choice to help you **Build Your Vision.™**

$1.04 BILLION
2021 REVENUE

OVER 41
YEARS IN THE BUSINESS

500+
CHANNEL PARTNERS

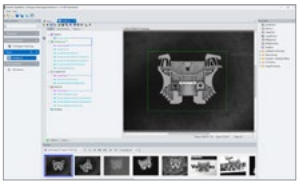
GLOBAL OFFICES IN
20+ COUNTRIES

3,500,000+
SYSTEMS SHIPPED



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.

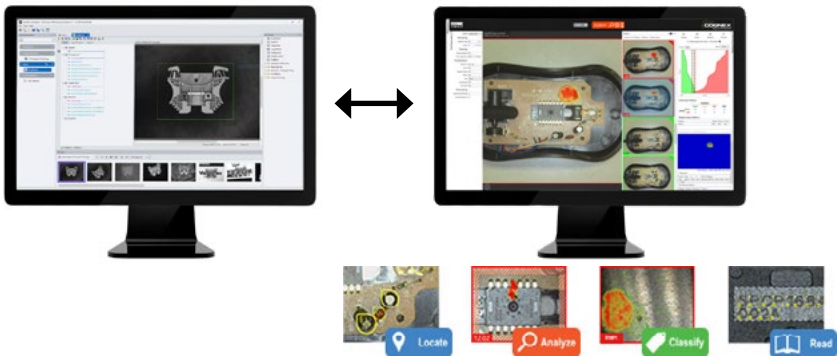
Proven, reliable vision tools

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.

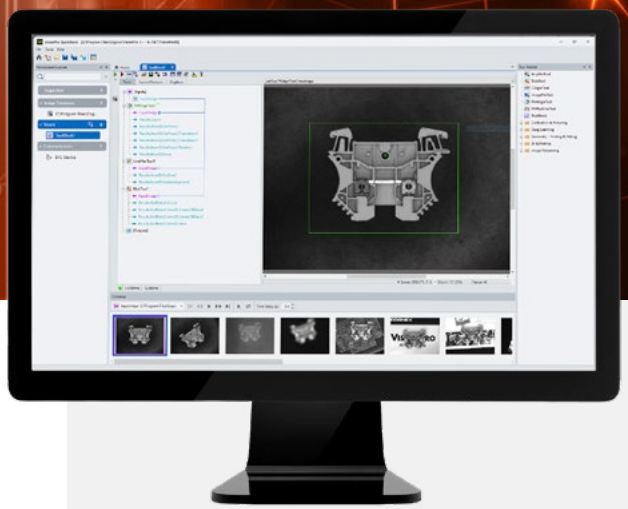
VisionPro 10 **VisionPro Deep Learning**



Powerful software continuum

The Cognex software continuum, consisting of VisionPro and VisionPro Deep Learning, offers a comprehensive set of machine vision tools inside a common development framework. Compatible across Cognex's extended product family, this fully integrated solution combines the benefits of deep learning with the simple training of traditional machine vision, making it the ideal solution for a range of applications and skill levels.

VISIONPRO



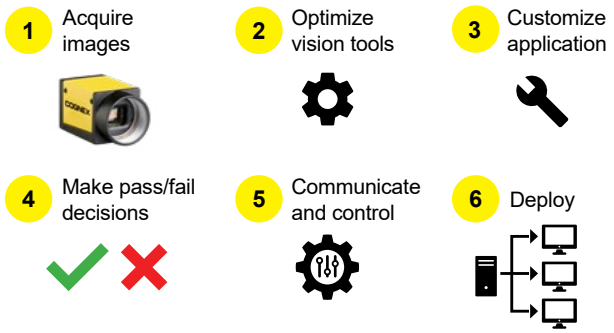
PC-BASED VISION SOFTWARE FOR YOUR MOST CHALLENGING VISION APPLICATIONS

VisionPro combines best-in-class vision technologies in an easy-to-use development environment. Powerful enough to automate any vision task, VisionPro leverages extensive tool prototyping to enable rapid deployment of highly-customizable applications. With a future-oriented design that includes rule-based and hybrid smart tools, plus deep learning capabilities, this innovative software is ready to support your vision needs for today and tomorrow.

QuickBuild environment shortens development time

VisionPro 10 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



Quick integration of deep learning tools

VisionPro enables easy integration of Cognex's deep learning technology. From the drag-and-drop interface within QuickBuild, users can load a trained VisionPro Deep Learning workspace and link it with any VisionPro tool for pre- or post-processing. Integration into a common development environment streamlines application deployment and gives users greater flexibility in building custom solutions.

Key benefits

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

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

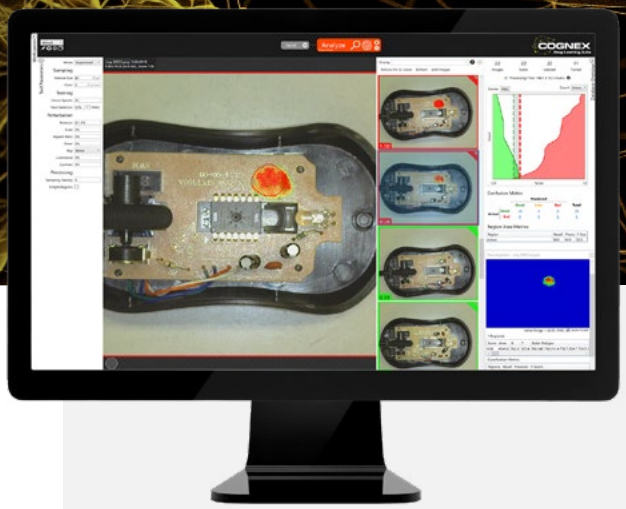
Industry-leading vision tools
Comprehensive toolset of rule-based and hybrid smart tools solves a broad range of applications

Unmatched programming flexibility
.NET programming interface (C# API) and a C++ API deliver high customization and configurability

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

Microsoft Windows OS support
Compatibility with common operating system offers graphical prototyping and programming

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

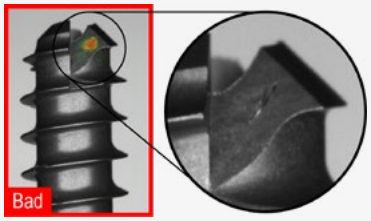
VisionPro Deep Learning is optimized for real-world industrial image analysis, requiring vastly smaller image sets and shorter training and validation periods. Non-vision experts can train applications and generate accurate results in minutes.

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.

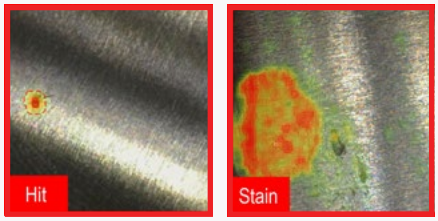
Locate Finds and counts complex features and objects



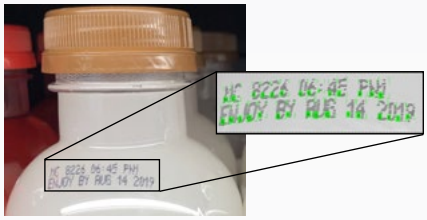
Analyze Detects anomalies and cosmetic defects



Classify Classifies and sorts objects and complete scenes



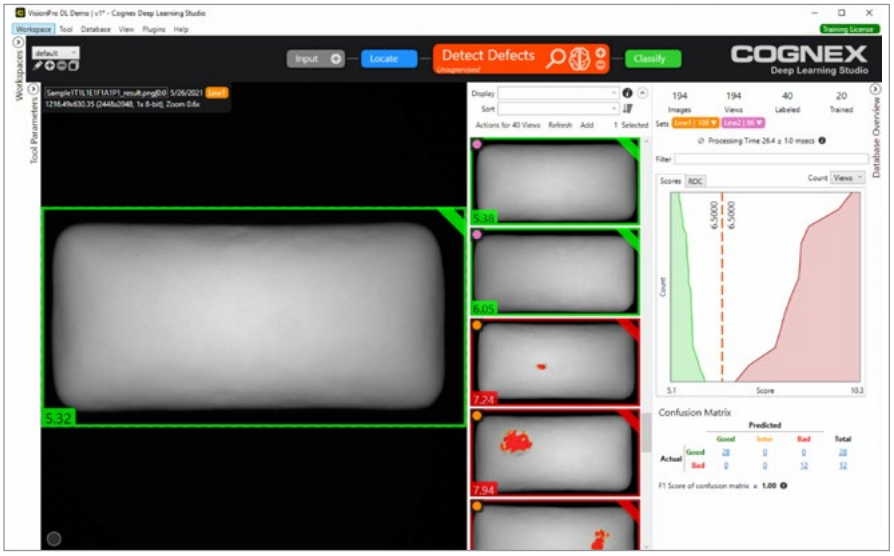
Read Reads challenging and deformed characters



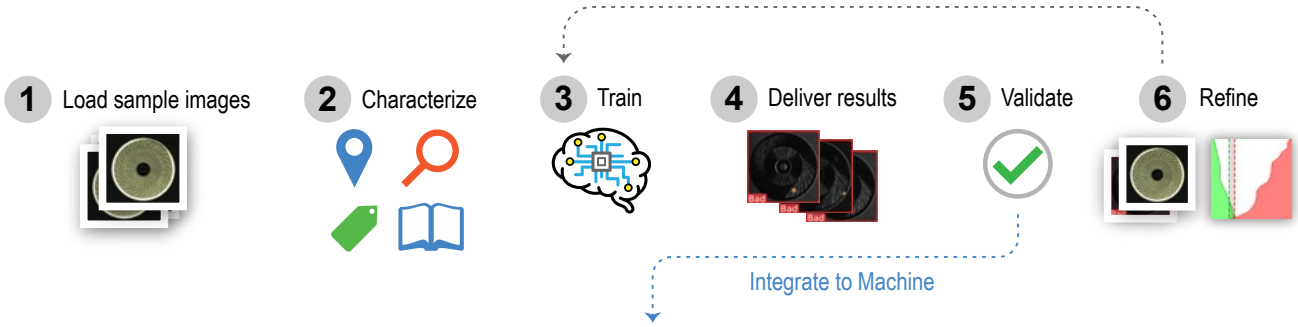
VISIONPRO DEEP LEARNING

INTUITIVE AND GRAPHICAL TRAINING

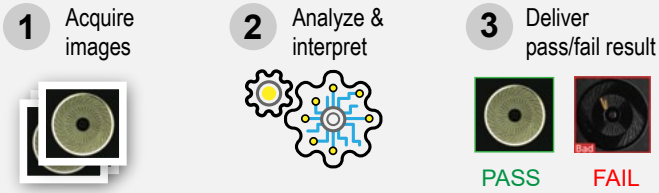
The graphical training interface within VisionPro Deep Learning simplifies the task of collecting images, training the neural network, and testing it on a variety of image sets. The unique tool-chaining capability lets users break down their problem into smaller steps, making it faster and easier to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



DEEP LEARNING TRAINING PROCESS



DEPLOYMENT PHASE



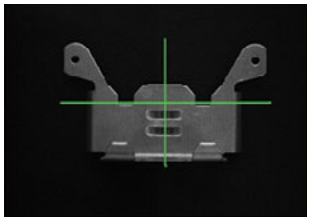
VISION TOOLS

THE INDUSTRY'S LEADING VISION TOOLSET

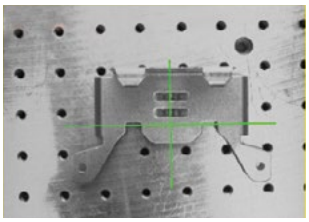
Cognex vision software offers an extensive library of tools that addresses a wide spectrum of applications, from simple to complex. Industry-proven, rule-based tools offer reliable, highly accurate automation, while hybrid smart tools leverage the capabilities of both rule-based vision and deep learning.

PatMax

The industry standard for part and feature location.



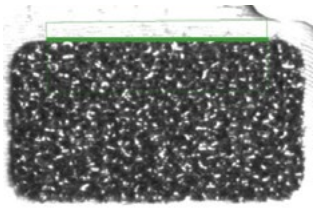
Trained image



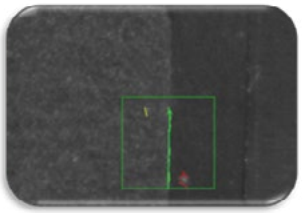
Confusing background

LineMax

Advanced line finding under low contrast and noisy conditions.



Noisy background

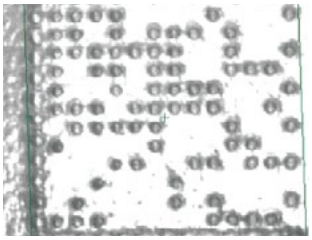


Low contrast

Identification and Verification

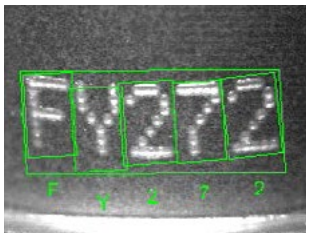
Optimized ID reading and character verification.

IDMax



Degraded Data Matrix codes

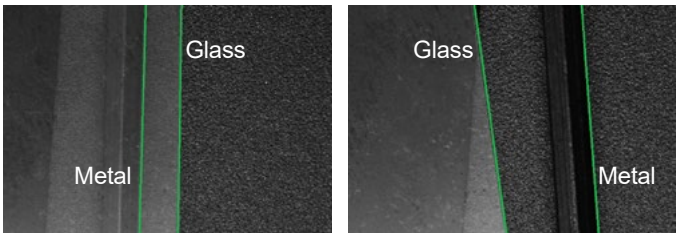
OCVMax



Vertical shift dot-matrix font

Smart Tools

Combining the best features of rule-based vision and deep learning technologies.



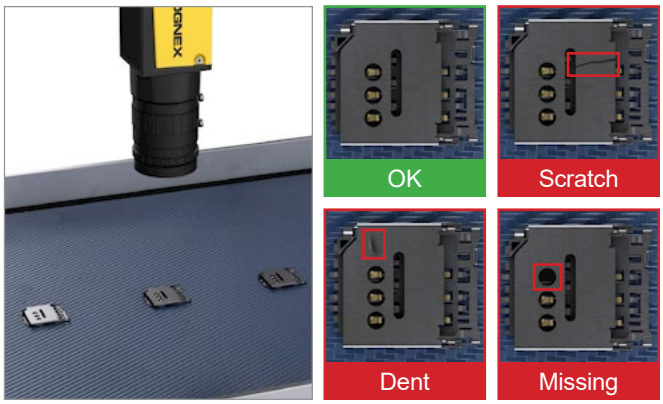
Smart Line line detection tool

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 OCR

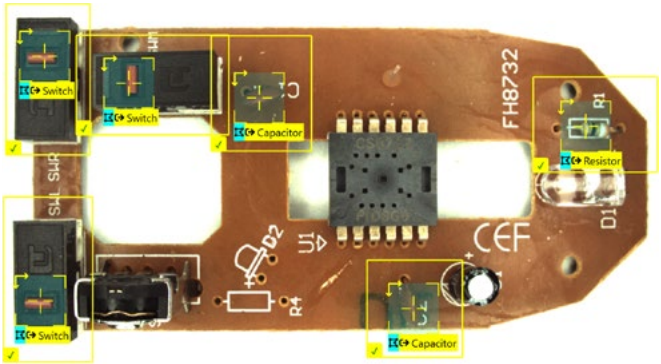
ViDi EL OCR deciphers badly deformed, skewed, and poorly etched characters using optical character recognition (OCR).



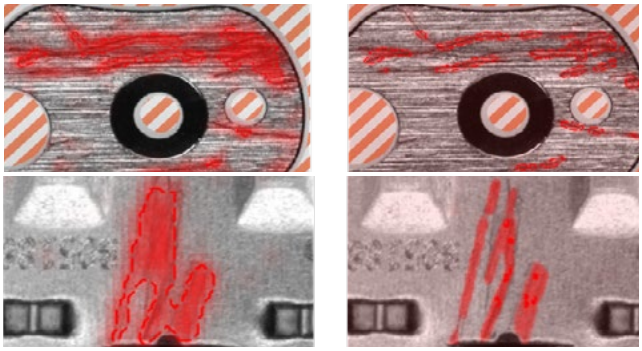
VisionPro Deep Learning

A variety of best-in-class, deep learning-based tools automate tasks that introduce significant variation.

Locate

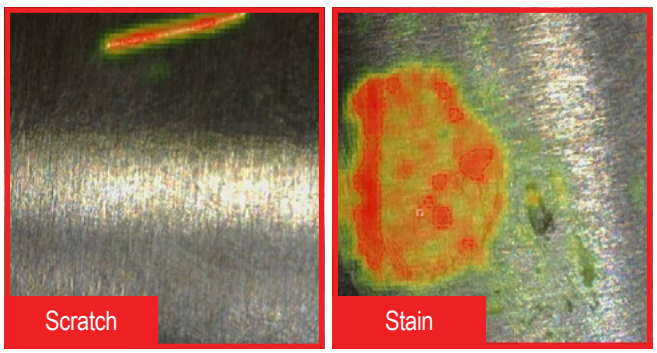


Analyze

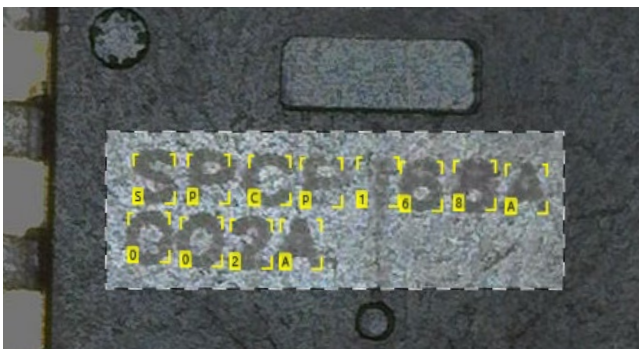


Focused Mode *High-Detail Mode*

Classify



Read



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 provide a proven data interface and deliver robust performance in a compact form factor. These small, lightweight cameras range from value models to high-performance hardware and are available in area scan and line scan formats.



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.



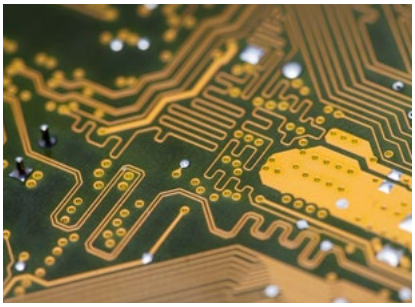
IPC5 Vision Controller

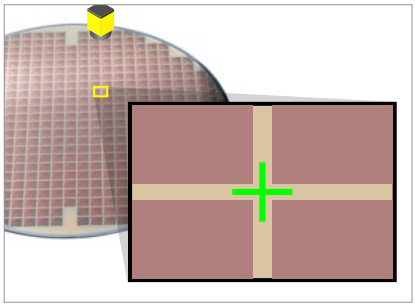
The industrial IPC5 offers high-speed parallel image acquisition and includes a rich set of discrete I/O and encoder inputs and networking capabilities for common factory protocols. This network-ready vision controller comes pre-installed with Cognex vision software and provides the flexibility to combine 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

Customers get more than software when they purchase from Cognex. They get a company focused exclusively on machine vision, with the most comprehensive application experience. Add direct, high-quality worldwide service and support, and it's easy to see why Cognex is the machine vision company that industries rely on.

Technical Support
Product Training
Hardware Programs
Product Lifecycle

When it comes to protecting your machine vision investment, Cognex understands that responsive, expert service is an expectation all customers should have. 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 help you 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.

cognex.com/support/cognex-services

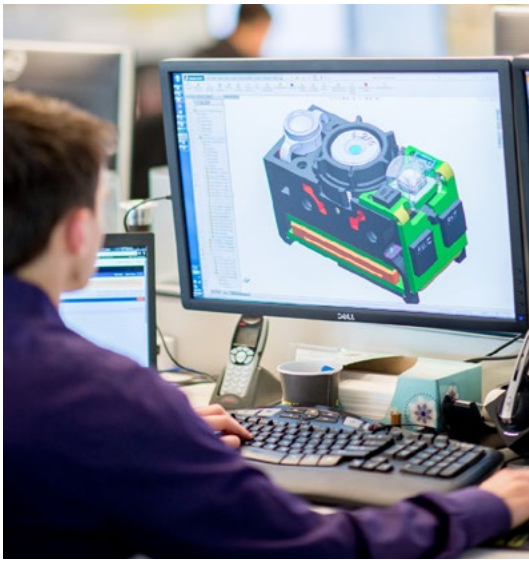


OFFICES IN 20+ COUNTRIES

500+ GLOBAL PARTNERS IN 30 COUNTRIES







BUILD YOUR VISION

2D VISION SYSTEMS

Cognex machine vision systems are unmatched in their ability to inspect, identify and guide parts. They are easy to deploy and provide reliable, repeatable performance for common to complex tasks.

www.cognex.com/machine-vision






3D VISION SYSTEMS

Cognex laser profilers and area scan 3D vision systems provide ultimate ease of use, power and flexibility to achieve reliable and accurate measurement results for the most challenging 3D applications.

www.cognex.com/3D-vision-systems





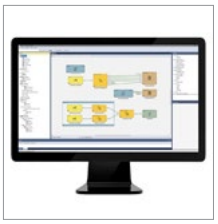


VISION SOFTWARE

Cognex vision software provides industry leading vision technologies, from traditional machine vision to deep learning-based image analysis, to meet any development needs.

www.cognex.com/vision-software





BARCODE READERS

Cognex industrial barcode readers and mobile terminals with patented algorithms provide the highest read rates for 1D, 2D and DPM codes regardless of the barcode symbology, size, quality, printing method or surface.

www.cognex.com/barcodereaders





COGNEX

Companies around the world rely on Cognex vision and barcode reading solutions to optimize quality, drive down costs and control traceability.

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