In-Sight

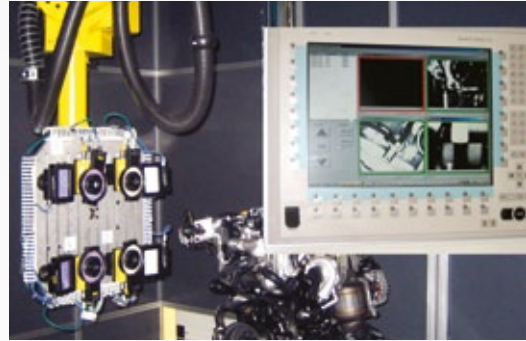# Vision Systems

Product Guide

COGNEX
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Industry Leading Performance

Since the inception of Cognex over a quarter century ago, we've recognized that the true test of a vision system is that it works under real world conditions on the factory floor. Performance is not just related to high-speed image acquisition and processing, but also to the combined power of the vision hardware and software. And that's what Cognex delivers. This assures users reliable, repeatable performance even in the most challenging vision applications. Industries from pharmaceutical to automotive to electronics rely on Cognex vision systems to ensure the end products they deliver to their customers meet the highest standards.

Exceptional Flexibility

The flexibility of the In-Sight® family of vision systems can be defined in a number of ways: processing power, resolution, vision tools, connectivity, and operator interface. Whether you are a system integrator, machine builder, or end user, In-Sight vision systems come equipped with a seamless application builder and networking environment.

Unmatched Ease-of-Use

Ease-of-use is built into the heart of In-Sight vision systems starting with smart vision tools that automatically select features, set parameters, and operate in real world conditions without adjustment. Our EasyBuilder® software interface offers everything required to easily set up reliable applications. With no programming needed, applications are deployed quickly. In addition, In-Sight offers the most comprehensive and easiest to use connectivity suite of communications capabilities to interface to PLCs, robots, the factory network, and HMI devices.

Extreme Ruggedness

All In-Sight systems are self-contained, compact vision systems requiring no external processor or separate camera. In-Sight is the only family of vision systems available today that provide industrial grade features as standard. That means rugged, die-cast aluminum and stainless steel cases that can withstand punishment of vibration, and sealed M12 connectors and protective lens covers that provide IP67 and IP68 rated protection against dust and moisture. It all adds up to peace of mind on the factory floor.

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A Wide Range of Models

Cognex offers the widest range of vision systems found in the industry with the In-Sight product family, which means that you can choose the correct platform for your application at the right price. All In-Sight models are powered by In-Sight Explorer software. In-Sight systems can be used for single-point inspection tasks or for building and entire factory-wide network of vision systems.

In-Sight 7000

Small, tough and very smart.
The new In-Sight 7000 vision system represents a true revolution in machine vision featuring powerful vision tools, faster image capture, capability to power and control a range of external lighting and enough input/output capacity for virtually any inspection scenario – all in a compact, industrial IP67 package that makes the system ideal for more applications than ever before.

In-Sight Micro

Make it small. Make it smart. Make it easy.
In-Sight Micro is the smallest vision system series at 30mm x 30mm x 60mm. Featuring power over Ethernet (POE), these ultra-compact vision systems are the right option for integrating into small spaces. In-Sight Micro is available in a range of performance levels and tool sets to meet a diverse array of machine vision demands.

In-Sight 5000

Rugged, reliable and powerful.
In-Sight 5000 is the groundbreaking machine vision series featuring more than fifteen different model types including high speed, high resolution, color, ID, line scan, stainless steel and more… all in a rugged IP67 package. In-Sight 5000 is suited for the harshest and most demanding environments.

In-Sight 500

For inspection on ultra-high speed manufacturing processes.
The In-Sight 500 vision system is a high-performance, fixed-mount vision system, packaged in a rugged, IP65-rated housing. The In-Sight 500 vision system boosts an accelerated acquisition implementation which enables the system to acquire partial images up to 500 frames per second. In addition to the standard In-Sight programming interface, In-Sight 500 provides an extensive tool set and state-of-the-art communication methods.

	Ultra High Resolution	Ultra High Performance	Ultra High FPS	Line Scan	Integrated Lighting	Smallest Profile	IP67 Rating	OCR Only Models	Color	ID
In-Sight 7000					•		•	•		•
In-Sight Micro						•			•	•
In-Sight 5000	•	•		•			•		•	•
In-Sight 500			•		•					•

In-Sight 7000 Series

Lighting Power and Control
Unlike most vision systems, the In-Sight 7000 smart camera has the capability to power and control specialized lighting directly and eliminating the need for external power supplies.

Lenses
C-mount lens compatible.

Housing
IP67-rated case stands up to caustic environments.

Connectors
Ethernet, power and I/O connect via the industrial M12 connectors.

Size
75mm x 55mm x 47mm, offering the most streamlined profile for In-Sight vision systems.

In-Sight 7000 Models

General Applications

Offering a range of performance choices, model options include high speed, higher resolutions, and the ultimate in tool flexibility.

Models:

7010, 7020, 7050, 7200, 7400, 7402

ID

ID models offer unmatched identification software tools for reading and verifying 1-D and 2-D codes.
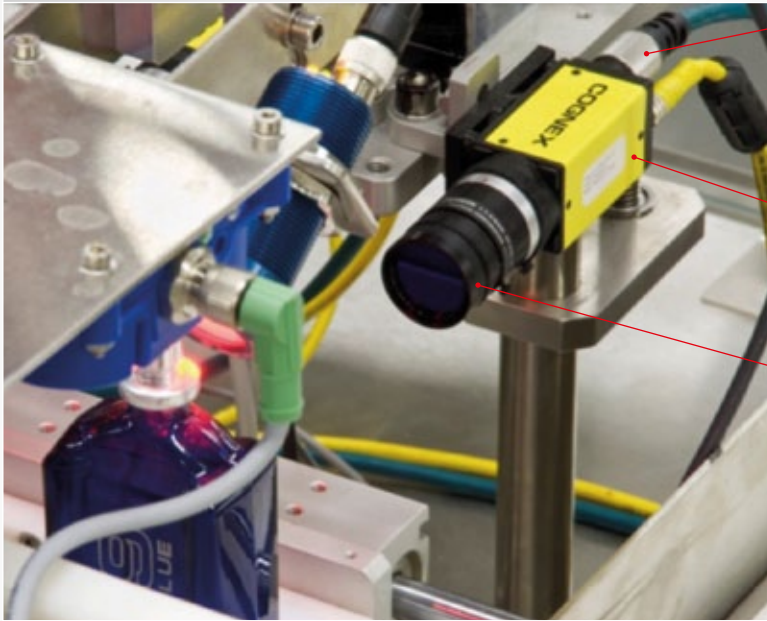
Models:

7210, 7410, 7412

OCR

OCR models provide advanced industrial text reading capabilities.

Models:

7230, 7430, 7432

For more information on In-Sight 7000 models, please refer to page 19.

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Connectors

Single cable for power and Ethernet connects via the industrial M12 connector. An M8 connector provides high speed trigger and outputs.

Housing

Die-cast zinc and steel case stands up to industrial environments.

Lenses

Accepts standard CS or C-mount lens (spacer for C-mount lens included).

Size

In-Sight Micro measures only 30mm x 30 mm x 60 mm

In-Sight Micro Models

Standard Resolution

Offering a range of performance choices, the In-Sight Micro models handle even the highest speed manufacturing lines in the smallest vision system footprint available.

Models:

1020, 1050, 1100, 1400

High Resolution

When large parts need to be inspected for small defects or precise measurements, turn to the high resolution models for greater accuracy.

Models:

1402, 1403, 1403C

ID

In-Sight Micro ID Readers use our unmatched identification software tools for reading and verifying 1-D and 2-D codes, and advanced OCR/OCV tools for reading and verifying text.

Models:

1110, 1410, 1412, 1413

Color

Includes the powerful ExtractColor software tool to inspect color features of a part and the robust MatchColor software tool to recognize parts based on their color.

Models:

1100C, 1400C, 1403C

For more information on In-Sight Micro models, please refer to page 20.
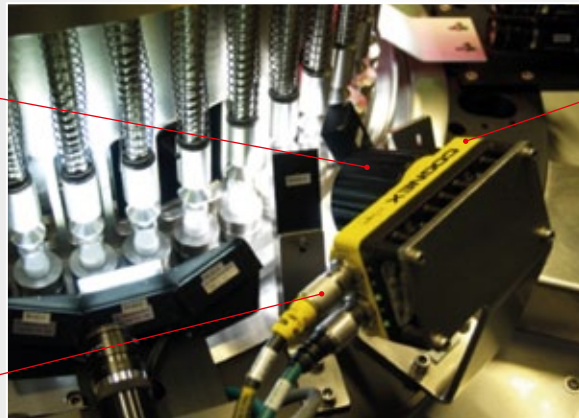
In-Sight 5000 Series

Lenses
Accepts standard C-mount lenses.

Resolution
Available in 640 x 480, 1024 x 768, 1024 x 8192, 1600 x 1200 and 2448 x 2048 formats.

Connectors
Ethernet, power and I/O connect via the industrial M12 connectors.

Standard Housing
Die-cast and steel cases are IP67 (NEMA 6) rated and have a protective lens cover.

Stainless Steel Housing
IP68-rated case stands up to caustic environments.

In-Sight 5000 Models

Standard Resolution

Built of rugged, die-cast aluminum, with sealed M12 connectors, and an included protective lens cover, the In-Sight 5000 Series models offer a wide array of performance choices, all with IP67 (NEMA 6) rated protection.

Models:

5100, 5400, 5600

High Resolution

When large parts need to be inspected for small defects or precise measurements, turn to the high resolution models for greater accuracy. Up to a 5 megapixel version available.

Models:

5401, 5403, 5603, 5605

ID

In-Sight ID readers use our unmatched identification tools for reading and verifying 1-D and 2-D codes, and advanced OCR/OCV tools for reading and verifying text.

Models:

5110, 5410, 5411, 5413, 5610, 5613, 5614, 5615

Color

Includes the powerful ExtractColor tool to inspect color features of a part and the robust MatchColor tool to recognize parts based on their color.

Models:

5100C, 5400C

Line Scan

The In-Sight line scan builds an image line-by-line, as a product moves past the system. This alternative method for acquiring images is suited to applications such as inspecting 360° around a cylindrical object, building high quality, high resolution images, and inspecting parts on a web.
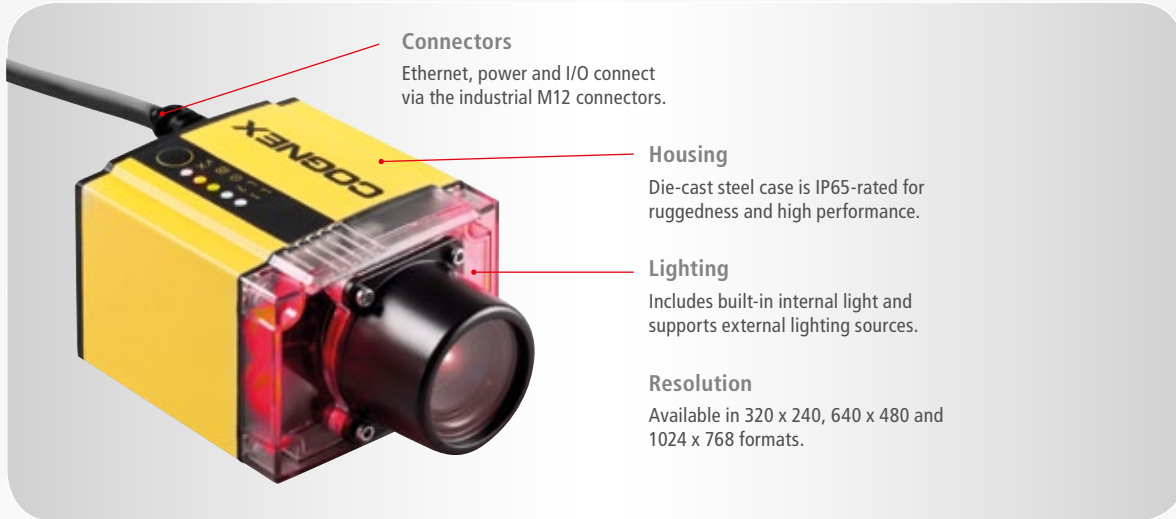
Models:

5604, 5614

High-Performance

The high-performance series offers a 1GHz processor running the Cognex vision tool library at the highest speeds to keep up with the fastest production lines. The 5600 is available in standard, high-resolution, and line scan, for ultimate acquisition flexibility.

Models:

5600, 5603, 5604, 5605, 5610, 5613, 5614, 5615

For more information on In-Sight 5000 models, please refer to page 21.

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Connectors
Ethernet, power and I/O connect via the industrial M12 connectors.

Housing
Die-cast steel case is IP65-rated for ruggedness and high performance.

Lighting
Includes built-in internal light and supports external lighting sources.

Resolution
Available in 320 x 240, 640 x 480 and 1024 x 768 formats.

In-Sight 500 Models

Standard Resolution

A high-performance, fixed-mount vision system, packaged in a rugged, IP65-rated housing.

In addition to the standard (spreadsheet) In-Sight programming interface, extensive tool set, and communication methods, In-Sight 500 provides the ability to window the acquired image and provides accelerated acquisition, enabling the system to acquire partial images up to 500fps.

- Built-in lighting

- A 1024x768 custom CMOS imager

- 4 inputs and 4 outputs

- C/CS-mount lens (Tameron recommended)

- Power over Ethernet power supplies

- Standard machine vision external lighting options

PatMax Model

Cognex's patented geometric pattern matching technology is the industry's gold standard for part and feature location, provides accuracy and repeatability under the most challenging conditions.

PatMax utilizes advanced geometric pattern matching technology to reliably and accurately locate parts. Even under the most challenging conditions, this tool can significantly reduce or eliminate fixturing requirements and cost. For locating parts or features, PatMax provides the maximum vision inspection yield and reliability available in a vision system.

For more information on In-Sight 500 models, please refer to page 20.

COGNEX id

In-Sight Fixed-Mount ID Readers

Cognex In-Sight fixed-mount ID readers provide unmatched code reading performance. These readers integrate lighting, camera, ID software, processor and communications into an industrial-grade design, making them the most versatile and rugged fixed-mount readers available today.

In-Sight ID readers incorporate IDMax®, breakthrough code-reading software based on the patented Cognex PatMax technology, through 1DMax™ and 2DMax™ algorithms. IDMax can read 1-D code symbologies such as UPC, PDF, stacked and postal codes, 2-D code symbologies such as Data Matrix and QR, or a mix of barcode and 2-D codes simultaneously.

1DMax is a best-in-class 1-D barcode-reading tool optimized for omnidirectional barcode reading and can handle extreme variations in contrast, blur, damage, voids, specularity, resolution, quiet zone violations and perspective distortion.

2DMax is optimized for reading QR codes and handles a wide range of degradations to 2-D Data Matrix code appearance that result from dramatic degradations in Direct Part Marking (DPM) code quality due to differences in material types and surfaces. 2-D Data Matrix code reading in DPM applications is an increasingly important part of manufacturing processes. An unreadable code may stop production, and can result in the part not being processed correctly.

Models

In-Sight 7000 Series:
7210, 7410, 7412

In-Sight Micro Series:
1110, 1410, 1412, 1413

In-Sight 5000 Series:
5110, 5410, 5411, 5413, 5610, 5613, 5614, 5615

In-Sight 500 Series:
All models

Advantages

- Real-time reading of 1-D and 2-D codes at rates over 7200ppm

- Includes IDMax – the industry's most reliable Data Matrix reading software

- Industry-standard mark quality assessment metrics for 1-D and 2-D codes

- Fast setup, plus reliable, robust operation

Fast, Reliable Code Reading

Industrial identification is very challenging due to variations in mark appearance, uncertainty of part position and high production line speeds. The combination of sensor, processor architecture and optimized ID software, allows In-Sight fixed-mount readers to meet high-speed production requirements, while maintaining accurate reading.

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Integrating In-Sight vision systems into your existing automation control system is easy with Cognex Connect™, the most comprehensive suite of communications capabilities ever available in a vision system. Whether you're connecting In-Sight directly to a PLC or robot controller, or managing multiple In-Sight vision systems remotely from a networked PC or HMI, Cognex Connect assures seamless communication between In-Sight and all of your equipment on the factory floor.

- Cognex Connect supports open-standard protocols used by the leading PLC manufacturers including CC-Link, MELSEC protocol, EtherNet/IP, PROFINET, and Modbus TCP. Whether connecting to Mitsubishi, Rockwell, Siemens, or any other brand of PLC, Cognex integrates into the control system with point-and-click simplicity.

- For interfacing to robots, Cognex Connect provides pre-configured communication tools for ABB, Denso, Kawasaki, Kuka, Motoman and Staubli. Communication with Mitsubishi, Adept, Epson, IAI, Nachi, Yamaha and many other robot manufacturers is also supported.

- For interfacing to HMIs, PCs and file servers, Cognex Connect provides an OPC Server, ActiveX Display Controls, In-Sight SDK, and support for TCP/IP, FTP, SFTP, Telnet and SMTP over Ethernet.
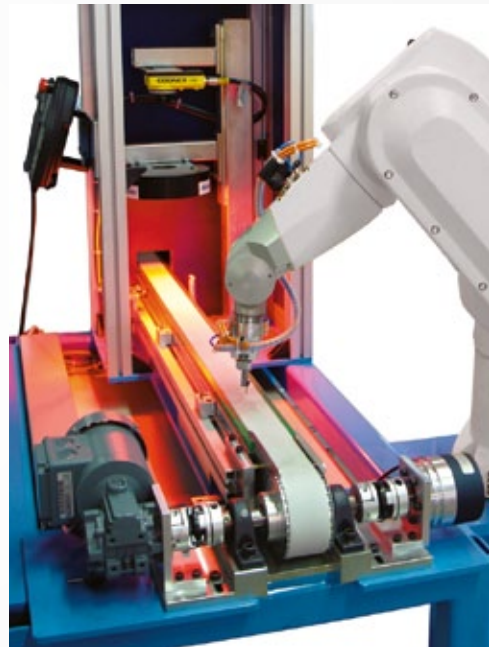
Vision Has Never Been Easier

The most powerful In-Sight vision tools are now the easiest to use and are presented more simply than ever before with the EasyBuilder interface in our In-Sight Explorer Software. This easy-to-use interface walks you through the process of setting up your vision application, step by step.

Great for first time vision users, EasyBuilder doesn't require you to learn programming, allowing you to get the application deployed and running in a very short time and enabling you to focus on what's most familiar… your part! Plus, the advanced vision tools and logic make EasyBuilder a powerful interface for the experienced vision user too!

For advanced vision users, In-Sight Explorer gives you access to the power and flexibility of the spreadsheet to allow you to program solutions for the most challenging applications.

Four simple steps guide you through the setup process.

The **palette** provides quick access to tool results, I/O status and built-in help.

Point-and-Click Setup Drop in tools quickly by simply clicking on the features of interest.

A **library of vision tools** are configured with the click of a mouse.

Intuitive, Easy to Use

Working from an image of the part, four simple steps complete the application setup:

1	**START**	Connect your In-Sight vision system on your network and set up the image to inspect.
2	**SET UP TOOLS**	Locate and inspect the part using a library of over 40 industry proven vision tools.
3	**CONFIGURE RESULTS**	Point-and-click setup for inputs, outputs, and communication to PLCs, robots and HMIs.
4	**FINISH**	Choose the images to record while inspecting, and put your In-Sight vision system online.

That's all it takes to complete an application! In a fraction of the time that you would normally spend learning how to set up a vision system, you can have your entire solution configured and deployed.

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Run-Time View

I/O Tab allows the user to monitor the input and output signals.

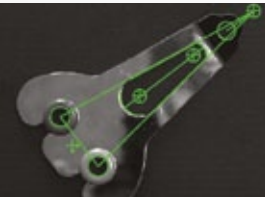**Results table** consolidates tool results for easy viewing and helps users understand tool references and performance timing.

Job Status displays the pass rate and run time for the project.
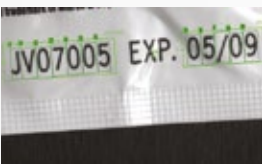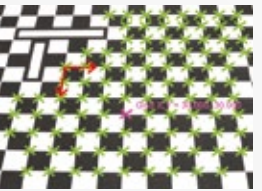
- The Filmstrip enables users to understand how their vision tools perform and to even troubleshoot manufacturing line issues.

- Recording up to 10,000 images to a PC—sorted by pass/fail results—provides robust process metrics on how vision tools will perform over time in changing conditions and boosts reliability when deploying vision to the line.

- Recording images directly to the vision system allows operators and technicians to understand why parts are passing or failing in real time, without halting the vision system.

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Powerful Vision Tools

The industry-leading Cognex vision tool library provides reliable, repeatable performance in even the most challenging vision applications. Regardless of the application, In-Sight vision tools have the reliability and accuracy that is required to solve even the most difficult applications.

Tool Category	Advantages	Applications

PART LOCATION TOOLS... LOCATE PARTS IN WIDELY-VARYING CONDITIONS RELIABLY AND ACCURATELY

- PatMax, the industry's accuracy and reliability standard for part and feature location, utilizes patented geometric pattern matching technology to locate parts under difficult conditions
- Simplifies mechanical fixturing and lighting, making vision projects easier and less expensive to implement

- Locate automotive, electronic, pharmaceutical, and consumer parts and assemblies for inspection
- Identify locations of parts for robotic handling, tolerating changes in rotation, scale, and lighting variations
- Precision part alignment

INSPECTION TOOLS... VERIFY THE CORRECT ASSEMBLY OF COMPONENTS AND FIND FLAWS IN PART APPEARANCE

- Provides robust, repeatable inspection results despite changes in part orientation
- Allows users to easily classify defects by defect type

- Verify correct assembly of automotive parts
- Verify the contents and seals of packaged goods for food, consumer, and pharmaceuticals
- Inspect correct assembly of electronics

MEASUREMENT TOOLS... MEASURE CRITICAL PART DIMENSIONS AND VERIFY TOLERANCES

- Enables high-accuracy gauging of critical part dimensions despite changes in part orientation and lighting
- Built-in geometry tools make complex measurements easy

- Measure and verify tolerances of automotive parts, assemblies, and product labels
- Measure critical tolerances of medical and surgical devices

ROBOT GUIDANCE TOOLS... ELIMINATE PART FIXTURING

- Combines part location tools with communication protocols for total guidance capability
- Eliminates costly fixtures in pick-and-place applications
- Allows processing multiple part types at the same robotic station

- High-speed precision pick-and-place. Place or remove parts on pallets
- Locate unfixtured parts on conveyor, and place them in package
- Use robot to manipulate part or camera to inspect critical features of part

FLEXIBLE FLAW DETECTION... FIND EDGE AND SURFACE DEFECTS

- Ability to flex
- Allows for process variations reducing false defects
- Ignores defect during run time
- False defects can be ignored and can be added to the mask

- Edge-based and surface (area) based inspection in one tool
- Find edge and surface defects
- Find boundary defects – conformity of shape
- Find surface defects – stains and scratches
- Find print inspection – silk screen logos

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Powerful Vision Tools

Tool Category	Advantages	Applications

INSPECT EDGE TOOL

- Provides robust, repeatable inspection results despite changes in part orientation
- Allows users to easily classify defects by defect type controlling thresholds that define a defect
- Works on straight or circular parts
- Determines min/max deviations and widths
- Helps to find gaps in addition to defects

- Verify the correct assembly of components and find flaws in part appearance
- Find deviations in edge position and defects and gaps with position and width
- Find width variations or missing beads along the bead path in bead tracking applications

COLOR VISION TOOLS... INSPECT AND IDENTIFY PARTS BASED ON COLOR

- The powerful ExtractColor tool learns simple or complex colors for color based inspection, location, and identification applications
- 24-bit resolution MatchColor tool reliably distinguishes between even subtle shade differences
- Point-and-click color training with simple adjustments make color application development easy
- External retraining enables color retraining on the factory floor without a PC

- Identify and sort products based on their color
- Monitor part color to ensure consistent quality
- Identify labels to ensure proper labeling of products
- Verify assembly of products based on the colors of components
- Inspect pharmaceutical blisterpack for the correct color tablets
- Verify color and proper assembly of LEDs

ADVANCED OCV/OCR TOOLS... VERIFY AND READ ALPHANUMERIC TEXT STRINGS

- Higher read rates
- Ideal for ink-jet printed characters
- Easier to use
- Handles low contrast characters as well as unevenly spaces characters

- Read or verify date/lot codes and SKUs of food and beverage, pharmaceutical, tobacco and consumer items
- Verify character legibility and proper printer operation
- Read direct-marked numbers and characters on automotive components

INDUSTRIAL CODE READING TOOLS... RELIABLY READ 1-D AND 2-D CODES ON LABELS OR DIRECTLY MARKED ON PARTS

- 1DMax™ is a fast, accurate, best-in-class 1-D barcode-reading tool
- 2DMax™ handles low-contrast, poorly formed 2-D codes resulting from process degradation and marking techniques such as dot peen and laser etch
- Reads up to 7200 parts per minute

- Read direct-marked 2-D codes on automotive, aerospace, and pharmaceutical parts
- Read and track 1-D and 2-D codes, and verify print quality to industry standards for consumer, food, beverage, and pharmaceutical products

NON-LINEAR CALIBRATION FOR THE MOST ACCURATE RESULTS

- Non-Linear Calibration improves accuracy and repeatability by correcting lens and perspective distortion
- Step-by-step wizard makes calibration simple, guiding users through the process of turning pixels into robot or real world coordinates
- Maintain accuracy even when the vision system is mounted off-axis

- High-accuracy robotic pick-and-place for standard mounting and off-axis mounting due to space constraints or robot motion constraints
- High-accuracy dimensions of critical measurements of medical devices

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TestRun for In-Sight

TestRun is a feature in In-Sight Explorer software that enables users to refine, test and verify inspection systems automatically. A setup dialog simplifies test routine configuration and no special spreadsheet programming is required.

Benefits of TestRun

- **Allows machine operators to easily and automatically test the vision system and verify that it is functioning correctly.**

- **Helps application designers demonstrate that the vision system meets the application criteria.**

- **Assist quality managers to identify "borderline" inspections and to refine pass/fail criteria.**

Available only with In-Sight vision systems, TestRun gives users increased confidence in the validity of their vision inspection results. Now, users can ensure that program changes don't break other parameters by quickly checking against the "baseline" configuration. TestRun also makes it easy for system integrators and OEMs to demonstrate that the vision system meets the acceptance criteria when it is installed at the end users' facility. And, it also minimizes bad results by easily checking that the vision hardware is performing properly.

The VisionView operator interface can be used to execute TestRun, which alerts the operator if there are any conditions that could negatively impact the operation of the vision system.

How TestRun Works

1. **Limit Testing.** Vision programs can contain many setup parameters. TestRun assigns pass/fail limits to these parameters, and when it executes, confirms that the current setup parameters are within the expected limits.

2. **Defect Testing.** A library of "challenge" images includes examples of "good" parts and "bad" parts. Reference images of bad parts can be further graded by the specific defect(s) present in the part. When TestRun executes, each image in the library is evaluated by the current vision program. TestRun confirms that the results from the current vision program match the "expected" results.

3. **Hardware Testing.** Achieving consistent vision system performance depends on maintaining consistent image quality. Hardware tests measure the integrity of the image acquired by the vision system by checking factors such as the focus (sharpness), the field of view (position), and the illumination (brightness) of the current system.

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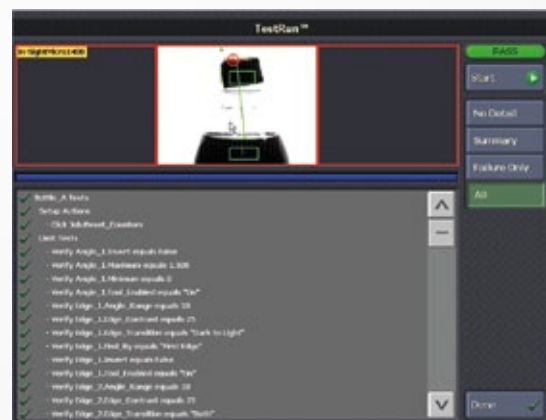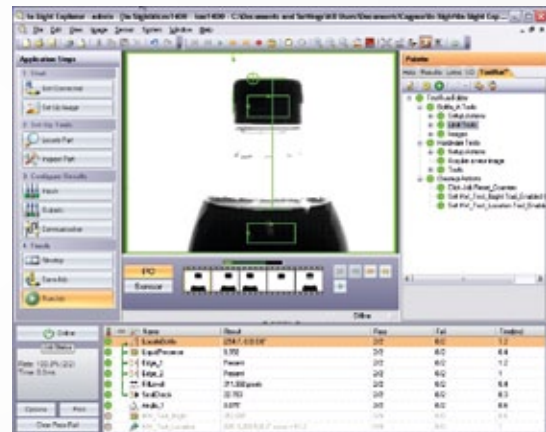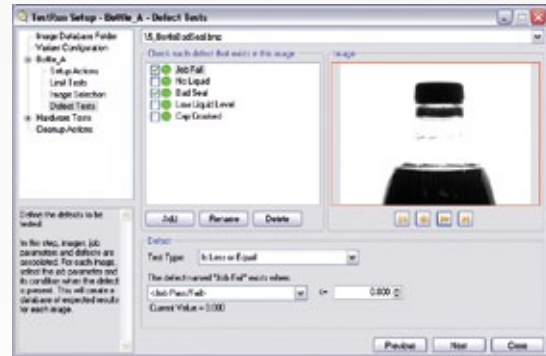
Ready for Serialization

The GS1 HUG™ (Global Healthcare User Group) "strongly recommends investing in camera-based" systems for automatic identification. But as healthcare product manufacturers preparing for the coming global traceability standards already know, a successful transition to mass serialization of product packaging involves more than simply reading a barcode on a label; all of the data on the label must be verified for accuracy.

In-Sight Track & Trace™ is up to the challenge.

Complete Identification and Data Verification Solution

In-Sight Track & Trace works with networked In-Sight vision systems to create a complete identification and data verification solution for serialized labels on pharmaceutical and medical device packaging. Whether you're looking for a standalone label inspection system, in the early stages of planning your traceability initiative, or you have active serialization projects, In-Sight Track & Trace can meet your needs today and equip you for tomorrow's requirements.

- Reads 2-D and 1-D barcodes, including Data Matrix, GS1-128, GS1 DataBar and Pharmacode
- Verifies correct ID code contents, including compliance with the GS1 Healthcare data standard
- Assesses Data Matrix code quality at runtime to detect print degradation
- Displays full color images, with graphic overlays and operator controls
- Verifies the accuracy of printed text
- Detects label misalignment and skew
- Provides a standard operator interface across enterprise

In-Sight Track & Trace is compatible with most In-Sight Micro and 5000 Series vision systems, allowing you to match the resolution and processing speed to the demands of your line. With dozens of models available, there's an In-Sight vision system to meet the price/performance requirements of any serialization application.

In-Sight Track & Trace provides a new approach to traceability that's less expensive to install, less complex to validate, and less costly to maintain. Because it can be combined with a variety of third party products, pharmaceutical manufacturers have the flexibility to customize and scale their serialization solutions to best suit their budgets and needs.

Ready for 21 CFR Part 11 Validation

In-Sight Track & Trace provides the technical controls needed for FDA 21 CFR Part 11 validation, including secure user authentication and support for automatic audit trail generation. Multi-level permissions can be configured to limit users' access to only the controls for which they are authorized. Plus, the compact, all-in-one In-Sight "smart camera" systems are easier to maintain and validate for Part 11 compliance than most Microsoft Windows® PC-based vision systems.

Easy to Integrate, Easy to Use

A touch screen friendly user interface makes In-Sight Track & Trace easy to configure and operate. Developers can integrate the In-Sight Track & Trace interface into a PC-based HMI or custom application using the included Cognex HMI Display Control for .NET. For a ready-to-deploy solution, In-Sight Track & Trace can also be controlled using the Cognex VisionView® 700 Operator Interface panel or VisionView PC software.

The In-Sight Track & Trace user interface is easily integrated into PC-based HMIs and custom applications using the Cognex HMI Display Control for .NET.

VisionView Features:

- **Four model options**
- **Automatic detection of any Cognex system on your network**
- **Works with In-Sight vision systems and DataMan® industrial ID products from Cognex**

Flexible Display Options

VisionView operator interface is ideal for monitoring and controlling vision systems and industrial ID readers on the factory floor, and allows operator controls specific to the application.

VisionView Application Software

The VisionView application software runs on all three platforms of VisionView offered from Cognex and offers the following features:

- **Automatic detection.** VisionView will automatically detect any Cognex vision system on your network.
- **Mix and match Cognex In-Sight systems.** VisionView allows you to view up to twelve In-Sight vision systems in a tiled view.
- **Graphical interface.** VisionView displays full color images, with graphic overlays and operator controls.
- **Fast image updates.** VisionView provides the most recent inspection images so you can view your process in real-time.
- **Access to CustomViews.** The operator controls created in the spreadsheet automatically appear in VisionView.
- **EasyView display.** Items selected from In-Sight EasyBuilder interface software will appear on the VisionView screen, with impressive ease of use.
- **Run-time ability to train fonts, without a PC.** No downtime is required during changeovers. Ideal for OCR/OCV applications.

Multiple Platforms

Cognex offers four platforms of VisionView to choose from:

1. VisionView PC Software

Monitor and control the vision application with the VisionView interface on a PC. This provides the flexibility of different display sizes. Choose your own PC and run VisionView directly on your existing machine... no additional hardware is required!

2. VisionView Operator Interface Panel

VisionView 700 is a powerful, low-cost operator interface panel that provides password-protected user control to adjust vision tool parameters and regions of interest without requiring a PC on your factory floor.

- Seven-inch touch screen gives total control during run-time operation
- Four Ethernet ports provide power for In-Sight Micro vision systems (power over Ethernet [PoE])
- One LAN port allows you to temporarily connect a PC for setup or use with an external switch to connect up to eight additional cameras (total of twelve connected cameras).

3. VisionView VGA

Monitor and control the vision application with the VisionView interface via a VGA connection. This provides the flexibility to connect smaller- or larger-size monitors for "control room" viewing of images, results, CustomViews, and EasyViews. The VisionView VGA supports VGA displays of different resolutions, as well as touch screen displays.

4. VisionView CE-SL for Third Party CE Panels

License a version of the VisionView software that can run on Rockwell PanelViewPlus,Siemens MP-Series, and Advantec CE Panels. Use your existing CE panels and save your valuable space. There is no longer a need to install new monitors.

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Customized Visualization and Control

From CustomViews integrated directly into the In-Sight Explorer software environment, to ActiveX controls for integration into third-party HMI systems, to custom-built standalone applications, Cognex provides a full suite of tools for users needing highly customized operator interfaces.

In-Sight Explorer CustomView

Integrated into the In-Sight Explorer software, the CustomView allows sophisticated operator interaction to be configured in the vision application. Graphical controls such as indicator lights, buttons, data displays and entries, trend charts and message boxes are placed in the spreadsheet view to create the operator display. The CustomView is also designed to be displayed automatically on VisionView.

In-Sight Display Control

Integrating data and images from an In-Sight vision system into third-party, Windows-based HMI software is quickly achieved using the In-Sight ActiveX Display Control. Tested with the most common HMI software packages, the Display Control integrates the vision experience into the rest of the machine control with drag-and-drop simplicity.

The CustomView interface is created easily, and is a cost-effective way to monitor single or networked In-Sight vision systems from a PC.

In-Sight Software Development Kit

A highly customized, standalone user interface can be tailored to your exact needs using the In-Sight Software Development Kit. This package provides the ultimate level of flexibility via programmatic methods for viewing data and images, changing parameters, and loading new jobs or recipes.

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To simplify and complete system integration, Cognex offers a variety of optional accessories designed specifically for use with In-Sight vision systems.

Lighting

LED array provides economical bright light for many applications.

In order to achieve the highest quality images possible, Cognex offers a wide array of lighting accessories. When basic lighting works for the application, integrated ring lights are ideal for In-Sight vision systems. Easily mounted directly to the vision system, these lights provide basic front lighting without having to purchase and install a separate light. Integrated ring lights are available in red LEDs, red diffuse LEDs and white LEDs.

Lenses

Cognex offers a full range of high-quality compact lenses designed specifically for machine vision applications.

And, for In-Sight ID models, image formation systems are available in seven different lens focal lengths.

Cables

In-Sight cables provide superior performance with rugged, stainless steel M12 connectors and are rated for ten million linear and thirty thousand torsional flex cycles... ideal for robot-mounted applications.

VisionView Operator Interface

VisionView operator interface is ideal for monitoring and controlling vision systems and industrial ID readers on the factory floor, and allows operator controls specific to the application. Available in multiple platform options.

I/O Modules

In-Sight I/O modules are designed to simplify connections and expand the I/O capabilities of In-Sight vision systems.

They allow easy access to power, acquisition triggers, and light strobe, and provide convenient general-purpose input and output wiring. Rugged quick-connect cables ensure reliable connections to the In-Sight vision system.

Additionally, I/O modules provide an RS-232 communications port for serial devices.

Your Cognex sales engineer or certified Cognex partner can provide information on these and other accessories that enhance In-Sight vision systems.

COGNEX vision

In-Sight 7000 Series

Model[1]	Speed Rating[2]	Acquisition[3] (fps)	Resolution		User Interface		Supported Tools[4]						Part Number
			800 x 600	1280 x 1024	EasyBuilder	Spreadsheet	Base Tools	Essential Tools	Extended Tools	ID Tools	PatMax Available	OCR Only	
7010	2x	102	•		•		B						IS7010-01
7020	2x	102	•		•		B	E					IS7020-01
7050	2x	102	•		•	•	B	E					IS7050-01
7200	6x	102	•		•	•	B	E	X	I	P		IS7200-01, IS7200-11 (PatMax)
7400	12x	102	•		•	•	B	E	X	I	P		IS7400-01, IS7400-11 (PatMax)
7402	12x	60		•	•	•	B	E	X	I	P		IS7402-01, IS7402-11 (PatMax)
OCR Models													
7230	6x	102	•		•							O	IS7230-01
7430	12x	102	•		•							O	IS7430-01
7432	12x	60		•	•							O	IS7432-01
ID Models													
7210	6x	102	•		•	•				I			IS7210-01
7410	12x	102	•		•	•				I			IS7410-01
7412	12x	60		•	•	•				I			IS7412-01

Notes:

1) In-Sight 7000 has three high speed input and three high speed output built in. I/O modules are available for additional I/O.

2) Speed rating compared to In-Sight Micro 1020 model and does not include image acquisition rate. The 5604 and 5614 models have acquisition speed rated in lines per second.

3) Acquisition rate is based on minimum exposure, and a full image frame capture.

4) Supported Tools:

    B Base tool set includes brightness, contrast, pattern, edge, point-to-point geometry, distance, angle, plot and blob tools.

    E Essential Tool Set includes blob, edge, curve and line finding, histogram and geometry tools, image filters, pattern matching, and standard calibration.

    X Extended Tool Set includes non-linear calibration and caliper tool. PatMax option available.

    I ID tool set includes: 1-D/2-D barcode reading and verification, text reading and verification (OCR/OCV) and image filters.

    C Color tool set includes MatchColor, ExtractColor, color historgram, color to greyscale filters and color to greyscale distance filter.

    P Includes PatMax, Cognex patented geometric pattern matching technology.

    O OCR model only.

For additional In-Sight technical information, please visit www.cognex.com/support/insight

COGNEX id

In-Sight Micro Series

Model[1]	Speed Rating[2]	Acquisition[3] (fps)	Color Model	Available in Stainless Steel	Resolution					User Interface		Supported Tools[4]					Part Number
					640 x 480	1024 x 768	1280 x 1024	1600 x 1200	1K Line Scan	EasyBuilder	Spreadsheet	Essential Tools	Extended Tools	ID Tools	Color Tools	PatMax Available	
1020	1x	60			•					•		E					ISM1020-01
1050	1x	60			•					•	•	E					ISM1050-01
1100	4x	60			•					•	•	E	X	I		P	ISM1100-01 ISM1100-11 (PatMax)
1100C	4x	58	•		•					•	•	E	X	I	C	P	ISM1100-C01 ISM1100-C11 (PatMax)
1110	4x	60			•					•	•			I			ISM1110-01
1400	10x	60			•					•	•	E	X	I		P	ISM1400-01 ISM1400-11 (PatMax)
1400C	10x	58	•		•					•	•	E	X	I	C	P	ISM1400-C01 ISM1400-C11 (PatMax)
1402	8x	60					•			•	•	E	X	I	C	P	ISM1402-01 ISM1402-11
1403	8x	14						•		•	•	E	X	I		P	ISM1403-01 ISM1403-11 (PatMax)
1403C	8x	7.5	•					•		•	•	E	X	I	C	P	ISM1403-C01 ISM1403-C11 (PatMax)
1410	10x	60			•					•	•			I			ISM1410-01
1412	8x	60					•			•	•			I			ISM1412-01
1413	8x	14						•		•	•			I			ISM1413-01

In-Sight 500 Series

Model[1]	Speed Rating[2]	Acquisition[3] (fps)	Color Model	Available in Stainless Steel	Resolution					User Interface		Supported Tools[4]					Part Number
					640 x 480	1024 x 768	1280 x 1024	1600 x 1200	1K Line Scan	EasyBuilder	Spreadsheet	Essential Tools	Extended Tools	ID Tools	Color Tools	PatMax Available	
500	10x	100				•					•	E	X	I		P	IS500-01 IS500-11 (PatMax)

For additional In-Sight technical information, please visit www.cognex.com/support/insight

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In-Sight 5000 Series

Model[1]	Speed Rating[2]	Acquisition[3] (fps)	Color Model	Available in Stainless Steel	Resolution					User Interface		Supported Tools[4]					Part Number
					640 x 480	1024 x 768	1600 x 1200	1K Line Scan	2448 x 2048	EasyBuilder	Spreadsheet	Essential Tools	Extended Tools	ID Tools	Color Tools	PatMax Available	
5100	4x	60			•					•	•	E	X	I		P	IS5100-01 IS5100-11 (PatMax)
5100C	4x	60	•		•					•	•	E	X	I	C	P	IS5100-C01 IS5100-C11 (PatMax)
5110	4x	60			•					•	•			I			IS5110-01
5400	12x	60		•	•					•	•	E	X	I		P	IS5400-01 IS5400-11 (PatMax) IS5400-S01 (Stainless Steel) IS5400-S11 (Both)
5400C	8x	60	•	•	•					•	•	E	X	I	C	P	IS5400-C01 IS5400-C11 (PatMax) IS5400-CS01 (Stainless Steel) IS5400-CS11 (Both)
5401	12x	20				•				•	•	E	X	I		P	IS5401-01 IS5401-11 (PatMax)
5403	12x	15		•			•			•	•	E	X	I		P	IS5403-01 IS5403-11 (PatMax) IS5403-S01 (Stainless Steel) IS5403-S11 (Both)
5410	12x	60		•	•					•	•			I			IS5410-01 IS5410-S01 (Stainless Steel)
5411	12x	20				•				•	•			I			IS5411-01
5413	12x	15					•			•	•			I			IS5413-01
5600	20x	60			•					•	•	E	X	I		P	IS5600-01 IS5600-11 (PatMax)
5603	20x	14					•			•	•	E	X	I		P	IS5603-01 IS5603-11 (PatMax)
5604	20x	44k lines[2]						•		•	•	E	X	I		P	IS5604-01 IS5604-11 (PatMax)
5605	20x	16							•	•	•	E	X	I		P	IS5605-01 IS5605-11 (PatMax)
5610	20x	60			•					•	•			I			IS5610-01
5613	20x	14					•			•	•			I			IS5613-01
5614	20x	44k lines[2]						•		•	•			I			IS5614-01
5615	20x	16							•	•	•			I			IS5615-01

For additional In-Sight technical information, please visit www.cognex.com/support/insight