COGNEX
vision

The global leader in Machine Vision

- Vision Systems
- Vision Sensors
- Vision Software
- 3D Laser Profilers

Global Leader in Machine Vision & Industrial ID

Cognex is the world's most trusted vision company, with 850,000+ systems installed in factories around the world, and over thirty years of experience focused solely on machine vision and image-based industrial ID technology. Cognex products are used by many of the world's top manufacturers, suppliers and machine builders to ensure that the products that are being made meet the stringent quality requirement for each industry.

Cognex vision technology helps companies improve their manufacturing quality and performance by eliminating defects, verifying assembly and tracking and capturing information at every stage of the production process. Smarter automation using Cognex vision and ID systems means fewer production errors, which equates to lower manufacturing costs and higher customer satisfaction. Cognex offers the widest range of solutions to meet every application.

Leader in machine vision & industrial ID	**30+** years in the business
1,000+ employees	**$300M+** 2012 revenue in machine vision
850,000+ systems shipped	**4,000** direct customers
Global offices in 20 countries	**450** channel partners

The most complete product range

Local expertise, worldwide reach

Standardizing vision and ID solutions across all production lines reduces the total cost of ownership. As the undisputed global leader in vision-based inspection and identification systems, Cognex is able to deliver and support large scale deployments at multiple global locations. Customers and consumers worldwide are demanding higher quality products than ever before.

Leading manufacturers and suppliers rely on local Cognex engineers and a global network of 450 partners to provide assistance wherever and whenever it is needed.

AUTOMATION SOLUTION PROVIDER ASP COGNEX

PARTNER SYSTEM INTEGRATOR PSI COGNEX

Whatever You Make, Make It Right with Cognex Vision

Why choose Cognex? We do more with vision—that's why people choose us. How do we do more with vision? We have products that perform the widest range of applications with greater reliability and repeatability than any other supplier. We have a global network of vision experts with the knowledge to assist you wherever and whenever you need it. With Cognex machine vision systems in place, you can perform 100% inspection, ensure brand quality and instantly improve your production processes to ensure you **Make It Right** every time.

Cognex vision technology performs tasks that are difficult or impossible for people to do reliably and consistently. Our vision systems speed production, minimize defects and reduce costs.

MAKE IT RIGHT™

Whether it is a standalone vision system or powerful vision software integrated into an OEM machine, vision technology can be used for one or any combination of the following applications:

Inspection

Inspect for assembly errors, surface defects, damaged parts and missing features. Identify the orientation, shape and position of objects and features.

OCR/OCV

Read and verify alphanumeric characters marked directly on parts and printed on labels.

Guide/Align

Guide automation equipment and robotic devices. Align parts for high accuracy assembly operations and other manufacturing processes.

Presence/Absence

Detect the presence or absence of simple features and objects to give basic pass/fail results.

Gauge/Measure

Gauge parts to check critical dimensions. Measure components for sorting and classification processes.

Code Reading

Read 1-D barcodes and 2-D matrix codes as part of an overall inspection. For applications that are ID specific, also look to DataMan® ID readers.

In-Sight
Vision Systems

Cognex In-Sight® vision systems are unmatched in their ability to inspect, identify and guide parts. These self-contained, industrial grade vision systems combine a library of advanced vision tools with high-speed image acquisition and processing. A wide range of models, including line scan and color systems, meet all price and performance requirements.

www.cognex.com/insight

In-Sight vision systems feature:

- Entirely self-contained vision systems
- Unmatched ease-of-use
- Rugged die-cast aluminum and stainless steel cases
- EasyBuilder® user interface for quick, easy application setup which requires no programming knowledge
- Spreadsheet programming environment for advanced users
- Acquisition speeds up to 500 frames per second
- Resolution up to 5 megapixels, color, ID, OCR and line scan model options
- Multiple lens/lighting options, including autofocus and integrated lighting
- VisionView® visualization software and accessories for monitoring and controlling vision systems on the factory floor

Checker
Vision Sensors

Easy, affordable vision sensors replace photoelectric sensors for more reliable inspection and part detection. Checker® vision sensors allow multiple inspections with a single device.

www.cognex.com/4G

Checker 4G series

- Fast, easy setup
- Patented part detection and inspection
- Industry standard Ladder Logic editor allows for customization
- EtherNet/IP and PROFINET PLC communication
- Unlimited image storage to FTP server
- Remote setup and display through SensorView® 2 (no PC required) or through your PC
- Up to four discrete outputs
- Up to 32 job changes for maximum flexibility
- Color lighting and filter options to optimize image contrast

DS1000
3D Laser Profilers

3D Laser profilers optimize product quality by providing three-dimensional inspection of your products. Compact and industrially designed, they also include industry-leading Cognex 2D and 3D vision software.

www.cognex.com/ds1000

DS1100 model

The factory-calibrated DS1100 provides results in real units of measurement with micron-level accuracy. Unlike traditional 2D machine vision, the system provides a topographical representation of your part from which you can measure 3D features such as length, width, height, tilt or volume relative to any surface.

- Inspects and measures in 3D: Volume, height, tilt, OCR
- Results in real-world units (mm): Calibrated to micron-level accuracy
- Contrast independent inspection: Dark object on dark background
- Ability to combine 3D and 2D cameras
- World-class 3D and 2D vision tools: Height, volume, plane fitting and tilt tools. PatMax®, IDMax® and OCRMax™ algorithms
- Industrial IP65 housing: IP69K enclosure option
- Fast scan rates: 10KHz

VisionPro
Vision Software

VisionPro® software combines the power and adaptability of advanced programming with the simplicity of a graphical programming environment. A library of powerful, proven vision tools allows for total hardware independence. VisionPro is ideal for systems integrators, OEMs and advanced vision users that require large numbers of cameras or applications that integrate with existing PC and human machine interface (HMI) hardware.

www.cognex.com/visionpro

VisionPro & 3D-Locate™ software

- Drag-and-drop linking between tools for quick communication of values, results and images
- Intelligent software fixtures to position tools dynamically, simplifying tool setup
- Reusable tool groups and user-definable tools to shorten development time
- The ability to harness maximum power provided by modern multicore machines
- GigE Vision® Cognex Industrial Cameras also available
- Typical Microsoft® operating system support including Windows® 7 in 32- and 64-bit

Industry Leading Technology

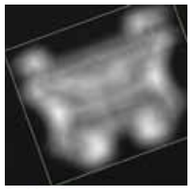
PatMax Part Location

The very first step in any machine vision application, and the one that usually determines whether the application succeeds or fails, involves locating the object within the camera's field of view—a process known as pattern matching.

Pattern matching can be extremely challenging, as many variables can alter the way an object appears to a vision system. To overcome these challenges, Cognex developed PatMax which revolutionized the process to accurately find objects despite changes in angle, size and shading.

The patented software tool is the industry's gold standard for part and feature location, providing accuracy and repeatability under the most challenging conditions. PatMax technology is the basis for such companion tools as PatMax SA, PatMax XLC, Synthetic PatMax, PatInspect®, and PatFlex® covering the broadest range of pattern matching and inspection in the industry.

www.cognex.com/patmax


PatMax-Blurred


PatMax-Occluded


PatMax-Trained


PatMax-Distorted

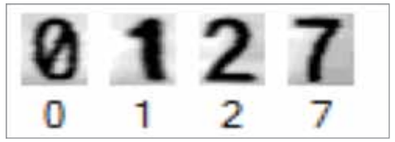
Breakthrough OCR

OCRMax gives In-Sight users the power to achieve the highest character read rates while keeping misreads to a minimum.

What makes OCRMax different?

This powerful algorithm prevents misreads, handles process variations and provides easy font management. It's fast, easy to set up with a unique auto-tune feature and simple to use across all platforms with minimal training for the user.

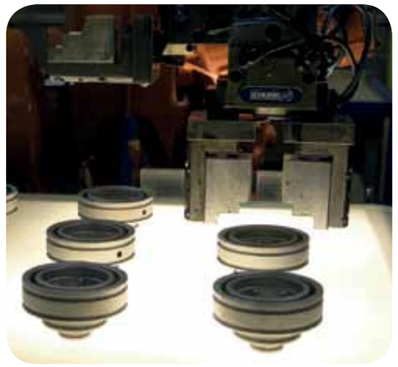
www.cognex.com/ocrmax



Robotic Guidance

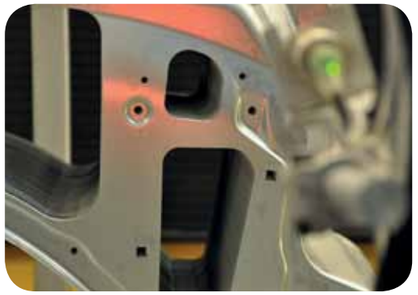
Cognex delivers unmatched accuracy and ease of use in vision guided robotics (VGR) applications. Advanced software tools provide precise part location and accurate inspection to:

- Eliminate costly precision fixturing
- Process various part types without tooling changeover
- Prevent accidental robot collisions
- Provide accurate inspections



High Performance 3D

Cognex 3D machine vision tools improve vision performance in a wide range of applications where 2D tools alone are not enough. VisionPro 3D tools work with many fixed or robot mounted cameras while a special 3D tool set is used with the DS1000 laser profiler for complete application flexibility.



Advanced Color Tools

Color tools offer a range of options for using vision to achieve quality and process control in your manufacturing operations, even on high-speed lines in the food and packaging industries. Cognex offers many powerful color tools and they are easier to use and more reliable than ever!

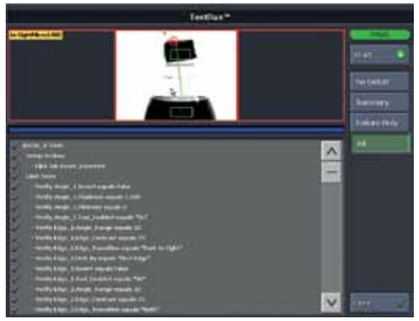
www.cognex.com/color

Presence/Absence Detection

Cognex vision sensors provide advanced presence/absence detection by:

- Detecting a part by finding an actual part feature
- Inspecting features that other sensors cannot
- Inspecting multiple part features simultaneously
- Overcoming varying part positions on the line

www.cognex.com/checker



System Validation

TestRun is a feature in In-Sight Explorer software which enables users to refine, test and verify inspection systems automatically. 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
- Assists quality managers with identifying "borderline" inspections and to refine pass/fail criteria

www.cognex.com/testrun

Complete Visualization

VisionView visualization is ideal for real-time monitoring and controlling In-Sight vision systems and DataMan barcode readers on the factory floor, and allows operator controls specific to the application. The SensorView™ 2 smart display allows users to set up, edit and monitor Checker vision sensor activity on a large industrial IP65 panel without a PC.

- Multiple platform options
- Automatically detect Cognex systems on your network
- Display full color images, with graphic overlays and operator controls

www.cognex.com/visionview and www.cognex.com/sensorview

COGNEX CONNECT

Comprehensive Communications Suite

Cognex products link to more factory automation equipment than any other range of products. Whether you connect directly to a PLC or robot controller or manage multiple systems remotely from a networked PC or HMI,

Cognex Connect™ assures a seamless reliable communications link between Cognex products and all of your equipment on the factory floor.

The table below summarizes just some of the communication capabilities with Cognex Connect.

www.cognex.com/connect

Factory Devices	Protocols	Protocol Types	Robots
Mitsubishi	MC Protocol	Industrial Ethernet	ABB
Rockwell	CC-Link	Fieldbus	Denso
Siemens	EtherNet/IP	Serial	FANUC
B & R	PROFINET	FTP Image Transfer	Kuka
Omron	PROFIBUS		Motoman
	FTP		Staubli
	Modbus		
	POWERLINK		

COGNEX EXPLORER

Centralized Control and Maintenance

The Cognex Explorer™ control center provides a unified network view of all Cognex vision, ID and visualization systems. Cognex Explorer provides powerful yet simple maintenance tools, the ability to backup/restore or clone projects, upgrade firmware and much more.

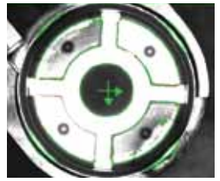
Cognex Explorer is very intuitive and requires no programming knowledge to use. The control center offers control and maintenance engineers the ability to:

- Find all Ethernet-connected Cognex hardware on the network
- View online/offline status of all systems on the network
- View device settings: IP addresses, firmware/software versions, job files, etc.
- Execute multi platform firmware updates
- Backup and restore multiple systems simultaneously
- Clone systems for emergency replacements or product changeovers
- Upgrade system licenses

www.cognex.com/explorer

Powerful Tools

The industry-leading Cognex vision tool library provides reliable, repeatable performance in even the most challenging vision applications.



PART LOCATION TOOLS
- Locate parts and assemblies for inspection
- Identify locations of parts for robotic handling, tolerate changes in rotation, scale and lighting variations

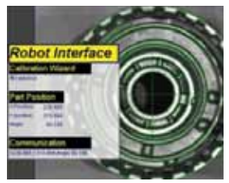
EDGE INSPECTION TOOLS
- Verify the correct assembly of components and find flaws in part appearance
- Find deviations in edge position and defects and gaps
- Find width variations or missing beads along the bead path in bead tracking applications

INSPECTION TOOLS
- Verify correct assembly parts
- Verify and inspect attributes of parts

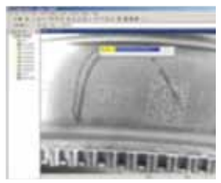
COLOR TOOLS
- Identify, inspect, sort and verify products based on color attributes
- Match products based on color

MEASUREMENT TOOLS
- Measure and verify tolerances of parts, assemblies and product labels

OCV/OCR TOOLS
- Read or verify date/lot codes and SKUs
- Verify character legibility and proper printer operation

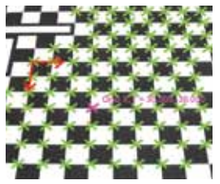


ROBOT GUIDANCE TOOLS
- High-speed precision pick-and-place
- Place or remove parts or locate unfixtured parts on conveyor, and place them in package
- Use robot to manipulate part or camera to inspect critical features of part



CODE READING TOOLS
- Read direct part marked (DPM) 2-D codes
- Read and track 1-D and 2-D codes and verify print quality to industry standards

FLEXIBLE FLAW DETECTION TOOLS
- Find edge, boundary and surface defects
- Find surface defects—like stains and scratches



NON-LINEAR CALIBRATION TOOLS
- High-accuracy robotic pick-and-place for standard mounting and off-axis mounting due to space or robot motion constraints
- High-accuracy dimensions of critical measurements of parts

Vision for Every Industry

With over 850,000 systems installed worldwide, Cognex machine vision systems are found in nearly every industry and used by most major manufacturers. Cognex vision systems perform 100% inspection, ensure brand quality and improve your production processes to ensure you Make It Right every time.

AUTOMOTIVE

The manufacturing processes for building virtually every system and component within an automobile can and have benefited from the use of machine vision.

CONSUMER PRODUCTS

Cognex is uniquely positioned to deliver the highest level of confidence in product safety, product quality and productivity improvements.

ELECTRONICS

Machine vision is an enabling technology that has made it possible to achieve the density in today's integrated circuits and permits cost-effective manufacture of such circuits.

FOOD & BEVERAGE

Food and beverage applications require vision that can perform precisely, accurately and quickly to keep up with the fast paced production lines.

MEDICAL DEVICES

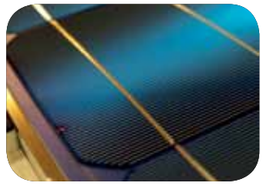
Quality inspection is critical to success. Liability for defective products, inconsistent quality, rapidly changing costs and pending regulations all challenge medical device manufacturers.

SEMICONDUCTOR

Whether for alignment, inspection or identification, machine vision is essential to every step of the semiconductor manufacturing process, from wafer fabrication to IC packaging.

PHARMACEUTICAL

The need to comply with patient safety and traceability requirements is imperative and machine vision helps meet compliance goals.



SOLAR

Whether it's for alignment to minimize wafer damage, tracking your product from wafer to installation or receiving live feedback to fix product and process problems, vision provides value to every step of the process.

In-Sight 7000 Specifications

Model	Speed Rating[1]	Acquisition[2] (fps)	Resolution		User Interface		Supported Tools[3]							Part Number
			800 x 600	1280 x 1024	EasyBuilder	Spreadsheet	Base Tools	Essential Tools	Extended Tools	ID Tools	Color Tools	PatMax Available	OCR Only	
7010	2x	102	•		•		B				C			IS7010-01
7020	2x	102	•		•		B	E						IS7020-01
7050	2x	102	•		•	•	B	E						IS7050-01
7200	6x	102	•		•	•	B	E	X	I	C	P		IS7200-01, IS7200-11 (PatMax)
7400	12x	102	•		•	•	B	E	X	I	C	P		IS7400-01, IS7400-11 (PatMax)
7402	12x	60		•	•	•	B	E	X	I	C	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:

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

1) 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.

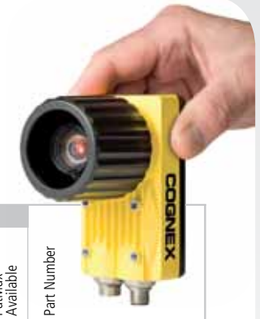
2) Acquisition rate is based on minimum exposure, and a full image frame capture.

3) Supported Tools:

- B Base tool set includes brightness, contrast, pattern, edge, point-to-point geometry, distance, angle, plot and blob tools.
- E Essential tool tet 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. Exception: In-Sight 7010C has Color ID tool only.
- P Includes PatMax, Cognex patented geometric pattern matching technology.
- O OCR model, EasyBuilder only, OCRMax, location tools and a subset of the Base tool set.

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

In-Sight 5000 Specifications



Model	Speed Rating[1]	Acquisition[2] (fps)	Color Model	Available in Stainless Steel	Resolution					User Interface		Supported Tools[3]					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

In-Sight Micro Specifications

Model	Speed Rating[1]	Acquisition[2] (fps)	Color Model	Available in Stainless Steel	Resolution					User Interface		Supported Tools[3]					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		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

Notes:

1) 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.

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

3) 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. Exception: In-Sight 7010C has Color ID tool only.
- P Includes PatMax, Cognex patented geometric pattern matching technology.
- O OCR model, EasyBuilder only, OCRMax, location tools and a subset of the Base tool set.

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

Checker Specifications

CHECKER 4G VISION SENSORS

LIGHTING & FILTER OPTIONS	
4G1, 4G7, 4G7S, 4G7X	Integrated red, blue, green, and infrared LEDs Integrated bright white LEDs Polarization

EXTERNAL TRIGGER INPUT	
Input ON	> 10VDC (> 6mA)
Input OFF	< 2VDC (< 1.5mA)
Protection	Opto-isolated, polarity-independent

OUTPUTS	
Output	Solid state switch
Rating	100mA, 24VDC
Max voltage drop	3.5VDC @ 100mA
Max load	100mA
Protection	Opto-isolated, protected from short circuit, overcurrent, and reverse polarity

ENCODER INPUTS	
Differential	A+/B+: 5-24V (50 kHz max) A-/B-: Inverted (A+/B+)
Single Ended	A+/B+: 5-24V (50 kHz max) A-/B-: VDC = ½ (A+/B+)

JOB CONTROL INPUTS	
Jobs supported	32
Input ON	> 10VDC (> 6mA)
Input OFF	< 2VDC (< 1.5mA)
Protection	Opto-isolated, polarity-independent

POWER	
Voltage	+24VDC (22-26VDC)
Current	250mA max

ENVIRONMENTAL	
Operating temperature	0° to 50°C (32° to 122°F)
Storage temperature	-30° to 80°C (-22° to 176°F)
Operating humidity	0%-90%, non-condensing
Operating altitude	4000m maximum
Shock	80Gs for 5ms on each axis (per IEC 68-2-2)
Vibration	10Gs (10-500Hz) per IEC 68-2-6
Protection	IP67

PLC COMMUNICATION
EIP w/AOP, PROFINET, TCP/IP, UDP/IP
FTP Image

MECHANICAL	
Dimensions	2.64in (67mm) H x 1.61in (41mm) W x 2.72in (69mm) D
Weight	148g (4.2oz)

MODES OF OPERATION
Internal part trigger, external part trigger, free running

CERTIFICATIONS	
4G Series	CE,FCC,RoHS,KCC and CSA

ACQUISITION	
4G7,4G7X	Up to 250 fps
4G1	Up to 500 fps

MINIMUM PC REQUIREMENTS	
(Only required for setup)	
Operating systems	XP™, Vista™, Microsoft® Windows 7® 32&64 bit
RAM	128 MB RAM
Interface Ethernet (4G Series)	10/100
Screen resolution	1024 x 768 (96 DPI) or 1280 x 1024 (120 DPI) display

CHECKER SENSORS	
Model	Part Number
4G7S	C4G7-24S-E00
4G1	C4G1-24G-E00
4G7	C4G7-24G-E00
4G7X	C4G7-24X-E00

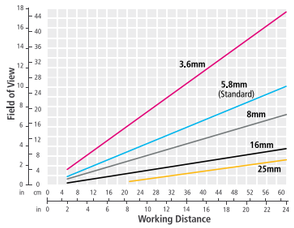
Note:
The 5.8mm lens ships standard with Checker.

OPTIONAL ACCESSORIES	
CKR-4G-CBL-001	Flying lead I/O cable (5m)
CKR-200-CBL-RT-003	Right angle I/O cable (1m)
CCBL-ENET-05	Ethernet Cable(s)
CCB-84901-6001-05	Right angle Ethernet Cable (5m)
C4G-BAK-000	Basic Accessory Kit
CKR-200-LENSKIT	Lens Kit
SV-890-000	SensorView 2 Smart Display

Notes:
Basic Accessory Kit includes Quick Start Guide, Checker software CD and mounting screws.
The Lens Kit includes 3.6, 8, 16 and 25mm lenses.

Field of View for Checker 4G7 Vision Sensors
Curves show the field of view for standard and optional lenses. Each grid square = 1in (2.54cm)

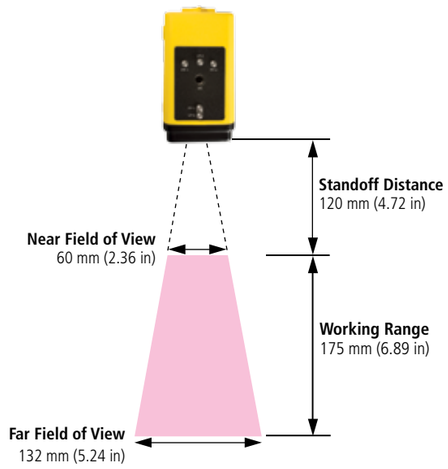
Field of View for Checker 4G1 Vision Sensors
Curves show the field of view for standard and optional lenses. Each grid square = 1in (2.54cm)



DS1000 Specifications

DS1100 Model

Dimensions	93.3 mm to 115.2 mm (H) x 50 mm (W) x 167.06 mm (L)
Weight	165 g
Operating Temperature	0°C to 50°C (32°F to 113°F)
Storage Temperature	-10°C to 60°C (-14°F to 140°F)
Maximum Humidity	95% (non-condensing)
Housing	IP65 (with Cognex recommended IP65 Ethernet and power I/O cables)
Shock	10 gs for 5 ms (any access)
Vibration	8 gs (any access, any frequency)
Discrete I/O Operating Limits	Trigger input voltage limits: - 24 VDC – +24 VDC Input ON: > 10 VDC (>6mA) Input OFF: < 2 VDC (<1.5 mA)
Encoder Input Specifications	Differential: A+/B+: 5-24V (50 kHz max) A-/B-: Inverted (A+/B+) Single-ended: A+/B+: 5-24V (50kHz max) A-/B-: +0VDC=½(A+/B+)
Power Supply	Voltage: +24 VDC (22-26 VDC) Current: 500 mA max
Scan Rate	10KHz
Resolution Z	.007 mm to .040 mm
Resolution X	.070 mm to .150 mm
Maximum Profile Points	1024
Laser Class	658 nm Class 2M and 3R
Software	VisionPro software
Ethernet	Gigabit Ethernet interface Integrated link and traffic LEDs Standard RJ-45 connector
Certifications	
Accessories	Ethernet cable: 5m, IP65-rated Power: + I/O + Encoder cable, IP65-rated Mounting bracket Stainless steel enclosure, IP69K-rated for the food industry



Cognex ID Read Any Code, Every Time

You need reliable industrial ID readers and, simply put, we read more codes and deliver the highest read rates—*that's why people choose Cognex.* When you can put a stop to no-reads by deploying the DataMan family of image-based barcode readers, you can achieve your industrial ID goals:

- **Increase efficiencies**—aid inventory management, quantify process bottlenecks and improvements, handle supplier printing variations, reduce WIP (work in process)
- **Achieve higher throughput**—less manual resorting, faster read times, reduce downtime
- **Reduce costs**—reduce scrap from rework of rejects
- **Maintain customer satisfaction**—avoid incorrect deliveries and recalls
- **Control traceability**—collect product quality information, improved asset tracking and allergen management, deter counterfeiting

1-D High Speed

Fast moving 1-D barcodes printed on parts or packaging.

2-D Direct Part Mark

Dot peen, etched or laser marked 2-D Data Matrix codes marked directly on parts.

1-D Low Speed

Slow moving or stationary 1-D barcodes printed on parts or packaging.

2-D Printed

2-D printed codes on labels and packaging. Moving or stationary, these can include a mix of 1-D and 2-D codes.

For the highest read rates, most advanced technologies and ease of use—Cognex ID!

COGNEX **Companies around the world rely on Cognex vision and ID to optimize quality, drive down costs and control traceability.**

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