COGNEX

Sensors, reimagined

One device, endless possibilities

In-Sight SnAPP Series

The In-Sight® SnAPP vision sensor brings the power of machine vision to everyone. With guided setup and pre-trained AI, In-Sight SnAPP allows manufacturers to quickly and easily automate inspections, no experience needed. Leveraging innovative vision technologies, these simple-to-use sensors solve a wide range of error-proofing tasks to improve quality control.

Flexible Functionality

- Presence/absence detection
- Quality and process inspections
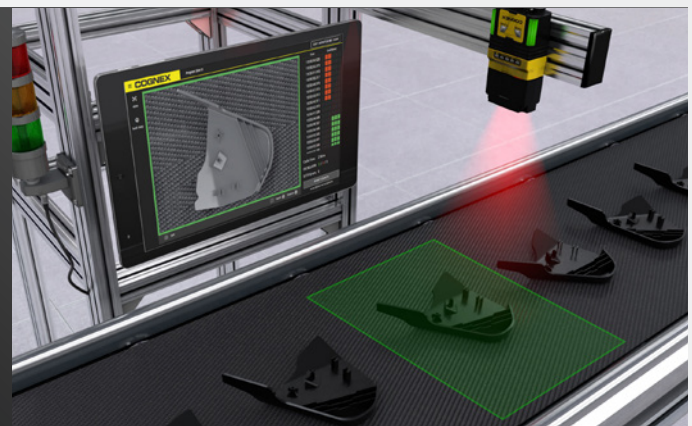- Sortation
- Assembly verification

➡ **PAGE 3**
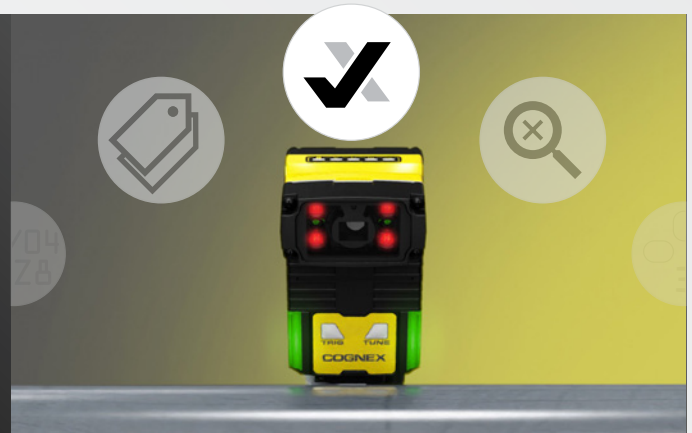
Superior Detection Capabilities

- Image-based detection for greater coverage
- Embedded AI identifies subtle features and handles variation
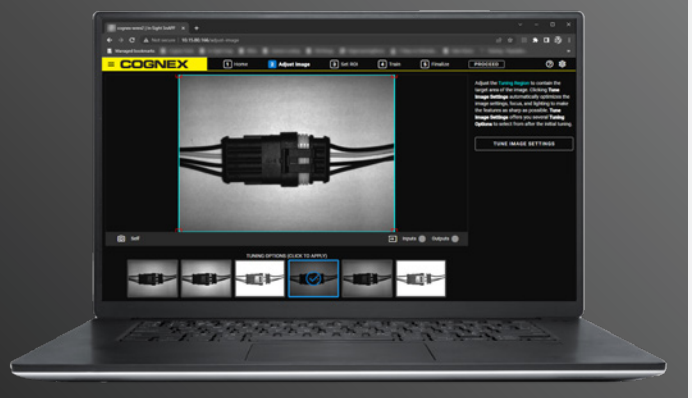- Highest detection rate in its class

➡ **PAGE 5**

High Ease of Use

- Guided setup
- Web-based user interface, no software needed
- Example-based training
- Simplified deployment and system integration

➡ **PAGE 6**

Flexible Functionality

**Solve a variety of quality control tasks with image-based detection**

Automation for all industries and applications

In-Sight SnAPP addresses a range of error-proofing tasks, from simple presence/absence detection to multi-point inspections. These sensors perform one job at a time but can solve a variety of different applications. Within the intuitive user interface, you can easily switch between applications to respond to changes on the line or create new jobs to automate more steps in your production process.
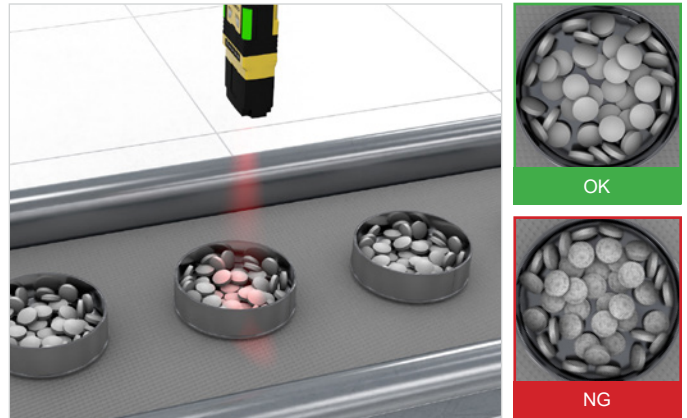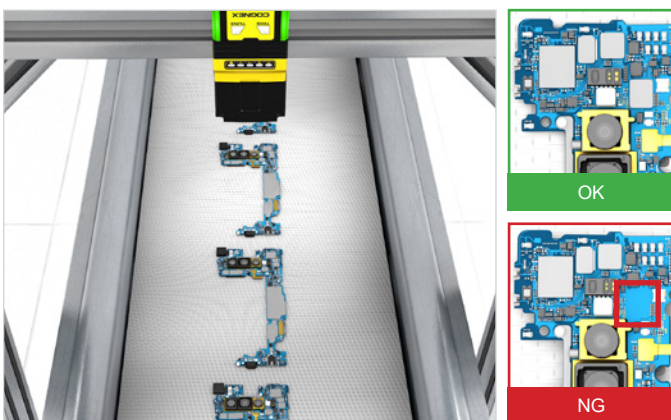
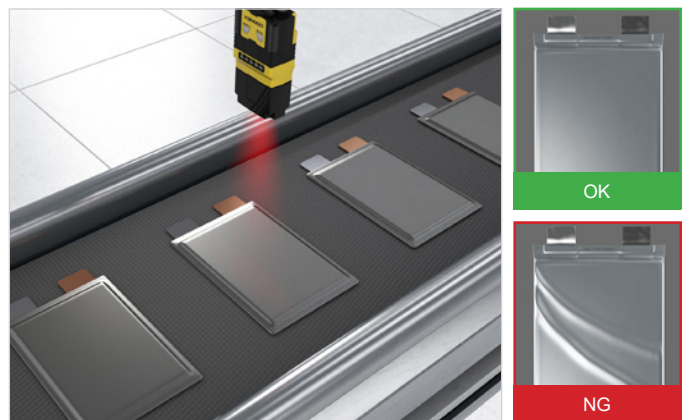### Anomaly Detector

Verify proper assembly

OK

NG
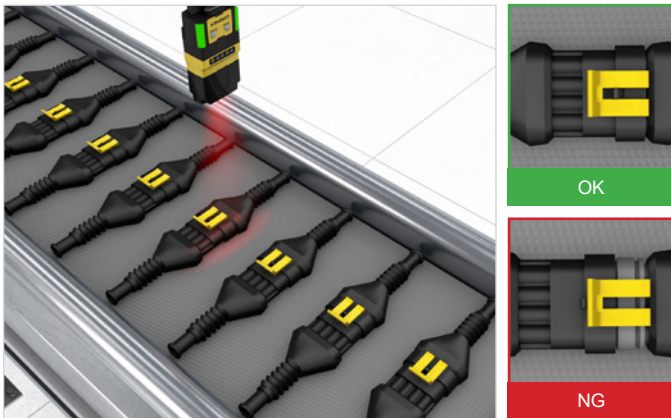
Inspect packaged items for debris

OK

NG

Detect presence/absence of components

OK

NG

Identify surface-level defects

OK

NG

2-Class Classifier

Verify product completeness

OK

NG
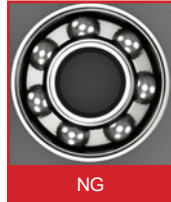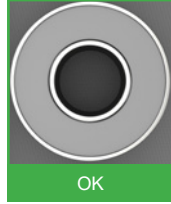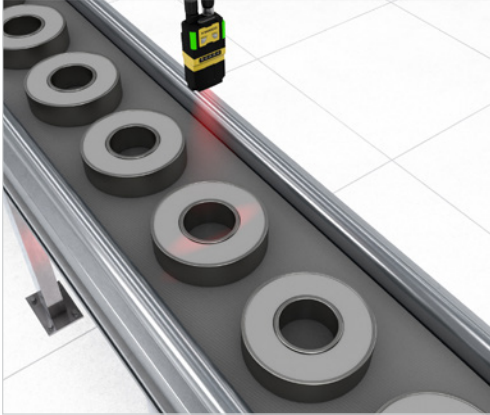
Inspect labels on final packaging

OK

NG

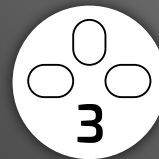**Confirm presence/absence of parts**

OK

NG
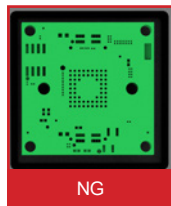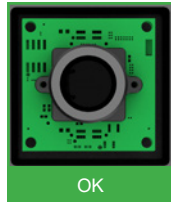
Automate process control

OK

NG
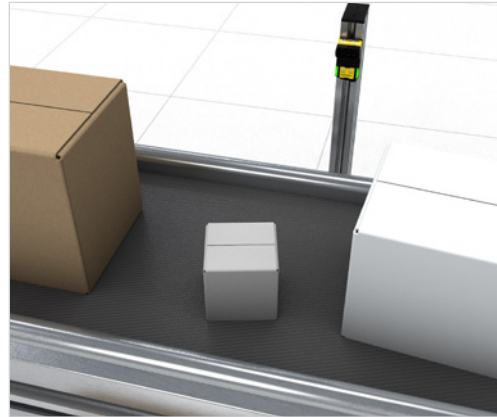
Coming soon

▪ Optical character recognition
▪ Counting
▪ Identification

Superior Detection

**Achieve higher detection rates with embedded AI and image-based analysis**

Expanding detection possibilities with AI

Powered by AI, In-Sight SnAPP vision sensors exceed the capabilities of conventional, laser-based sensors to offer flexible performance well-suited for any detection task. In-Sight SnAPP allows you to do more than ever before with a sensor, handling greater variation and detecting even the most subtle anomalies.

Limitations of laser-based sensors

Narrow region of interest means alignment must be on target

Singular inspection point
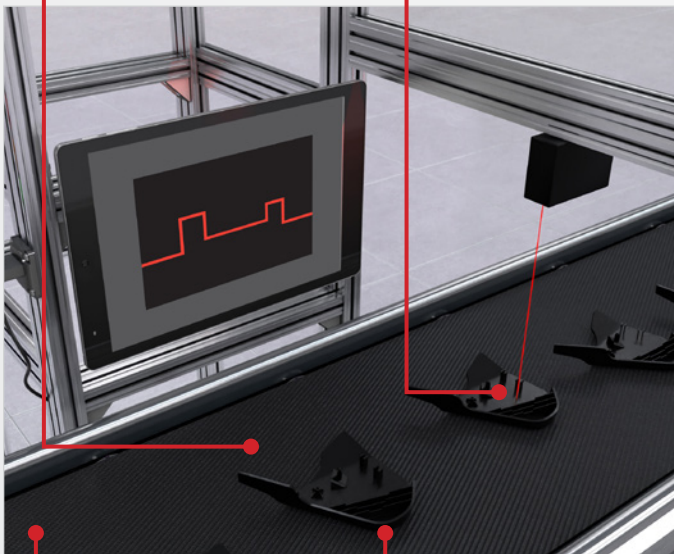
Knowledge of mechanical fixturing required

Use case is presence/absence detection

Benefits of image-based AI sensors

Wide region of interest handles misalignment and positional variability

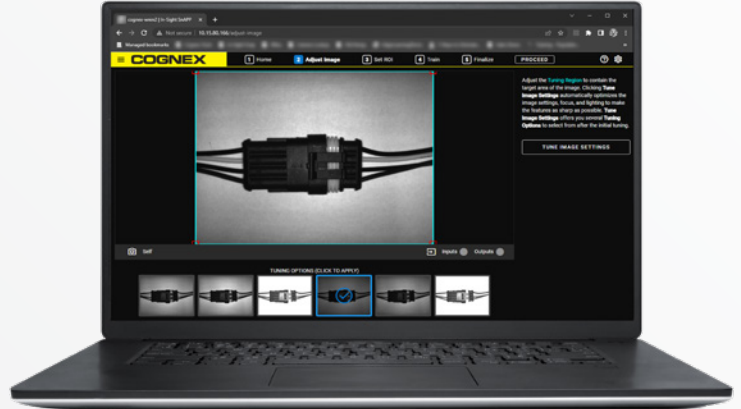Multiple inspection points
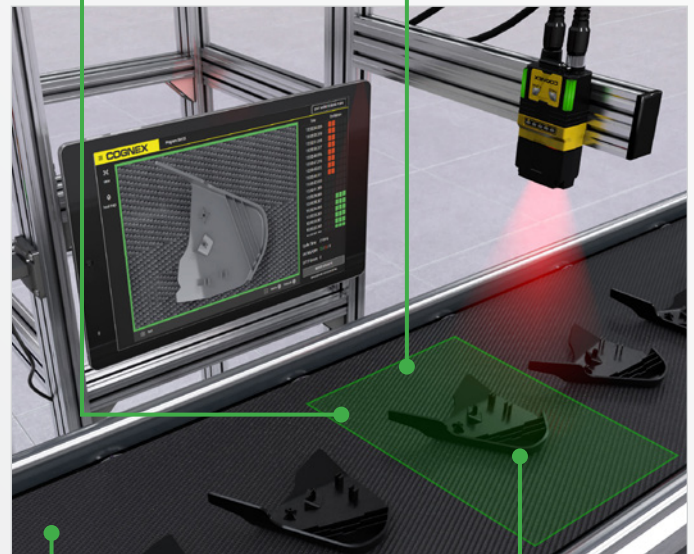
No technical expertise needed for setup

Use cases include:

- Presence/absence detection
- Quality and process inspections
- Sortation
- Assembly verification
- Optical character recognition
- Counting
- Identification

High Ease of Use

Go from unboxing to automating your line in minutes
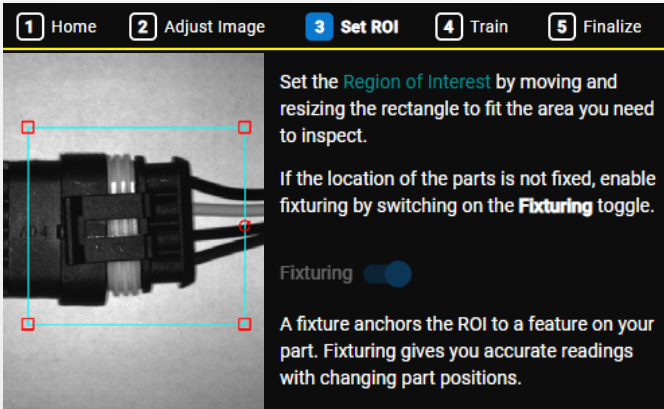
Fast, intuitive setup

Reduce downtime with quick, guided setup that walks you step-by-step through building your application.

Web-based user interface

Plug in and run In-Sight SnAPP from anywhere using the browser of your choice, no software installation required.

Example-based training

Train jobs using a few sample images and embedded AI takes care of the rest, learning to recognize anomalies and correctly predict the output.
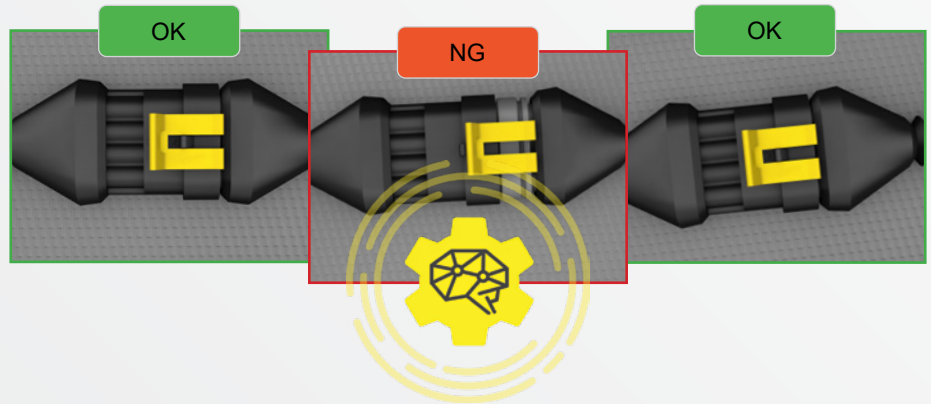
Simplified deployment

Easily modify applications or build new ones for product changeovers or additional lines within the UI, no hardware exchange needed.

Additional features

1-click image optimization

Capture high-resolution images, in a single click. AI automatically configures the optimal settings for more accurate inspections.

Web HMI compatibility

Set up and audit applications — without a PC — using an intuitive display panel that allows you to update and monitor jobs, directly on the factory floor.
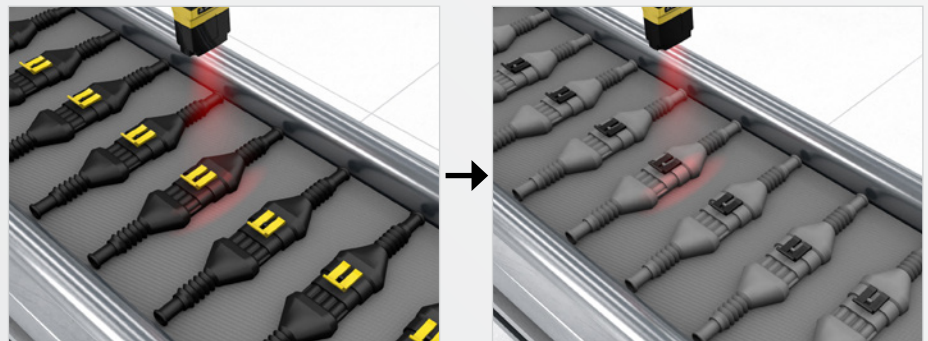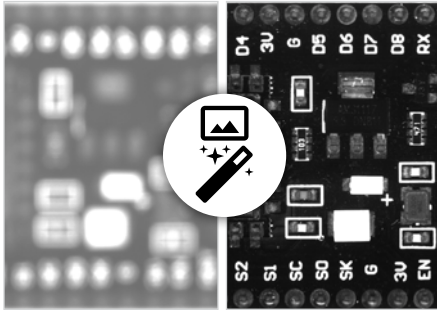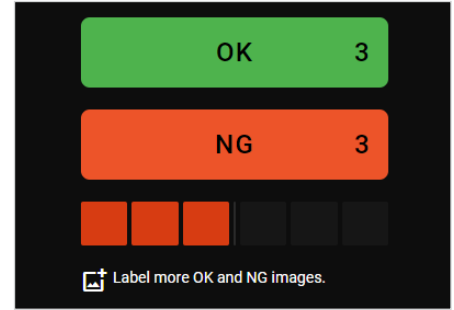

Real-time training feedback

View results in real-time to verify application performance and identify potential issues early in production.

Compact size

Easily add automation anywhere in your line with a small form factor.
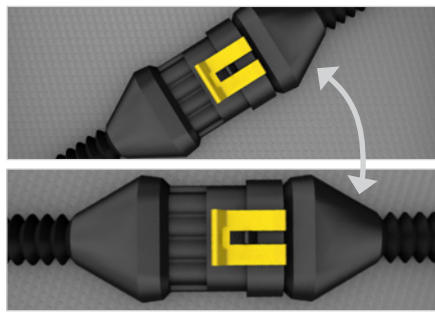
Fixturing capabilities

Fixture your region of interest to locate parts and features in any position — regardless of how parts come down the line — for consistent detection.

IP67 rated

Operate in even the most challenging manufacturing environments with a rugged design.

LED indicator

Get immediate, visual feedback on the performance of your sensor.

Setting up your In-Sight SnAPP Sensor

The intuitive In-Sight SnAPP training interface guides you step-by-step through setup, from image capture to final result, allowing both new and experienced users to build vision applications.

Get started

Setting up your In-Sight SnAPP is easy with a library of online, self-service support options. From initial deployment to ongoing management, there are a variety of resources available, so you can get the support you need on your schedule.

**www.cognex.com/
in-sight-snapp-support**
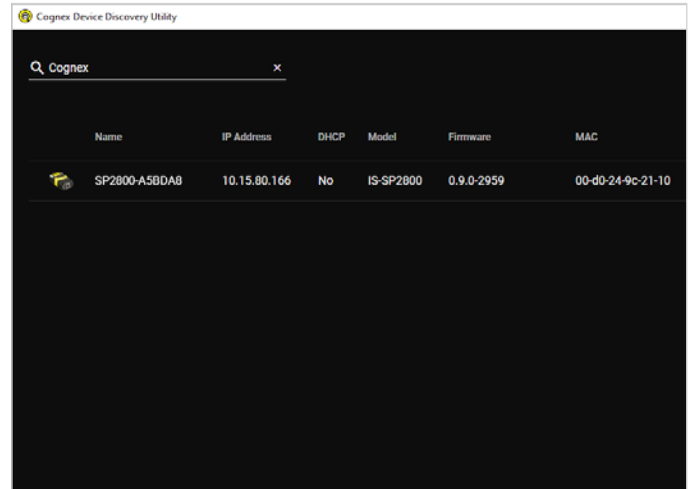
Pre-setup: Find the device.

Locate your device using the Cognex Device Discovery Utility.

Step 1: Open device and access the home screen

Manage settings and switch between available applications.

Step 2: Adjust image

Define the acquisition area.
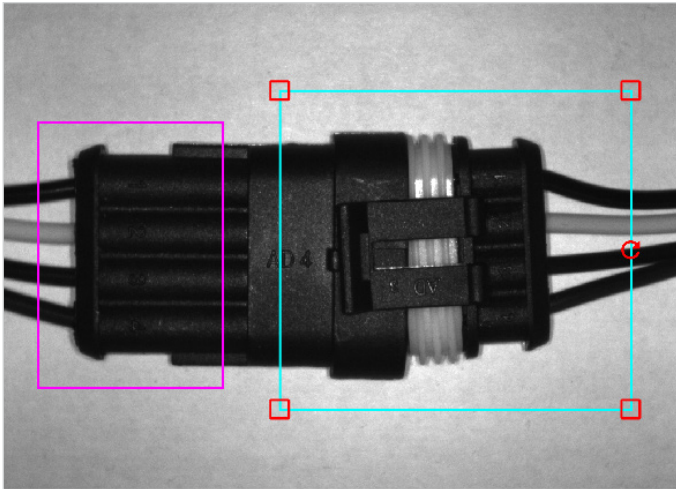
Step 3: Set the region of interest

Move and size the bounding box to the area within the image you would like to inspect.*
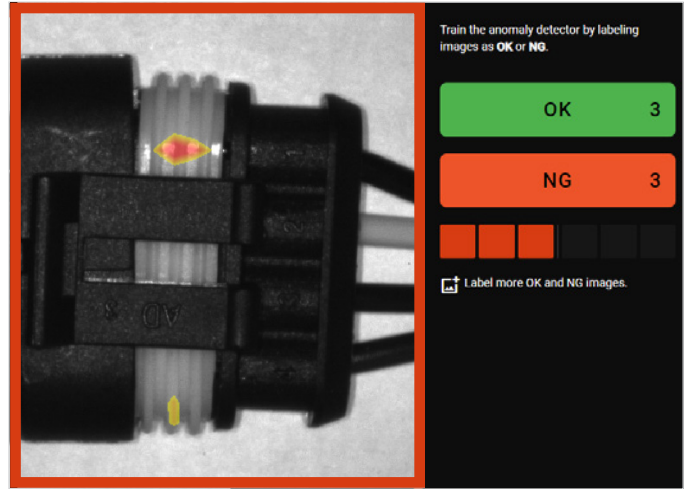
Step 4: Train

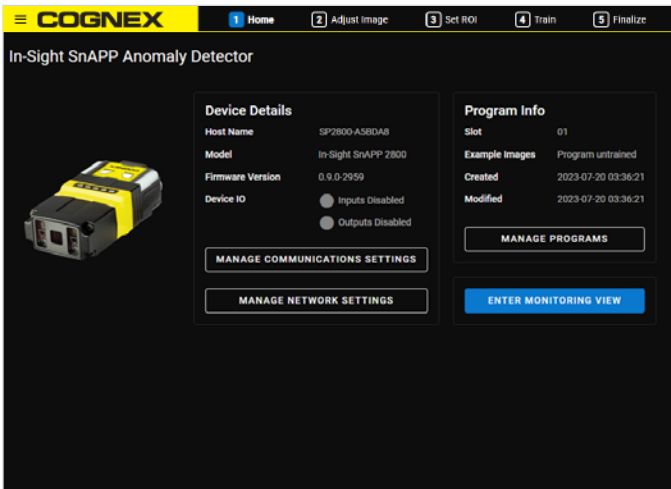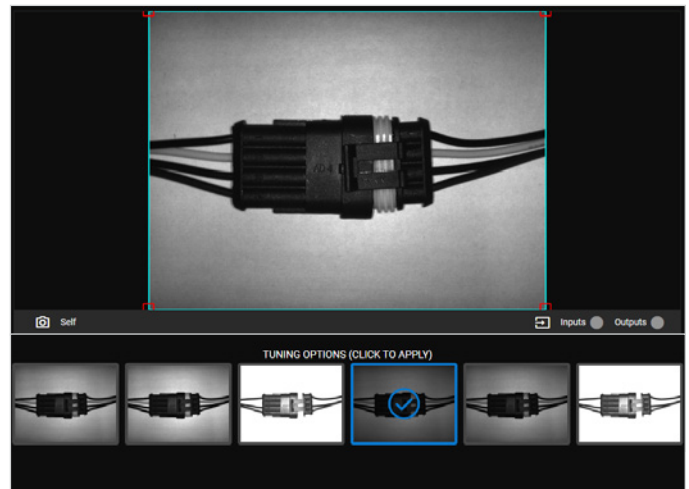Label images as OK or NG (approximately 3-5 for each class). Add new, unlabeled images and verify results based on the confidence indicator.
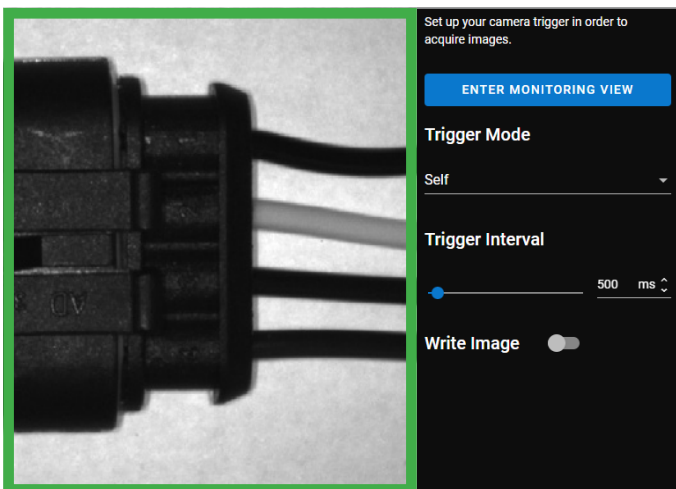
Step 5: Finalize

Select trigger mode settings. Choose from either self (sensor triggers itself based on the acquisition rate) or single (sensor is triggered externally).
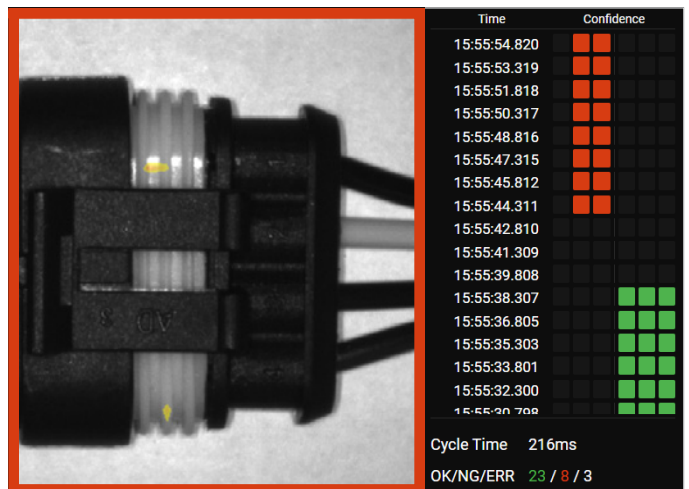
Post-setup: Enter monitoring view

Switch to the monitoring screen and view the results live.

*Note: If your part location is not stable, you may enable fixturing. Fixturing is a method that follows a part in the field of view and moves the vision tools to the correct location to perform the inspection.

IN-SIGHT SNAPP SPECIFICATIONS

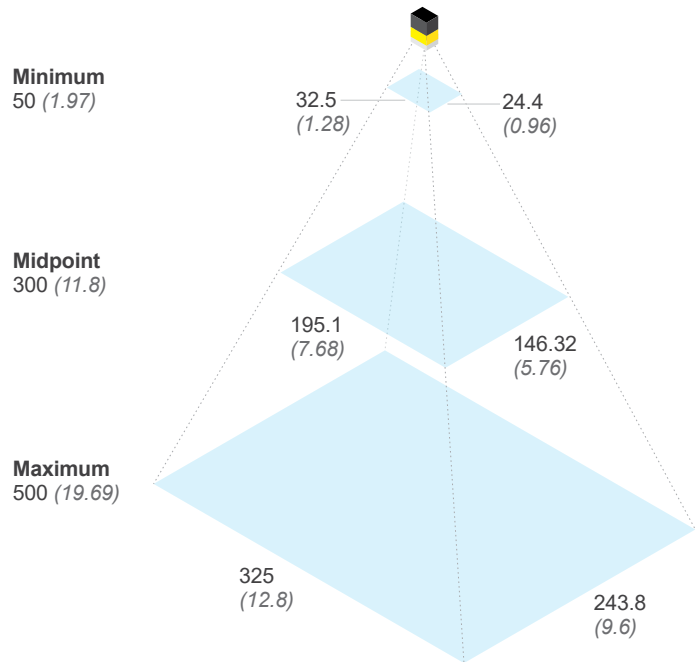|	
Weight	6.2 mm: 141 g 16 mm: 169 g Right angle configuration adds 50 g
Power	24 V DC +/- 10%, and Power over Ethernet (PoE)
Power Consumption	≤7.5W
Operating Temperature	0–40 °C (32–104 °F)
Storage Temperature	-10–60 °C (14–140 °F)
Humidity	<95% non-condensing
Environmental	IP67
Shock (Shipping and Storage)	IEC 60068-2-27: 1000 shocks, semi-sinusoidal, 11 g, 10 ms ISTA-1A Standardized Testing - Packaged Products 150 lb or less
Vibration (Shipping and Storage)	IEC 60068-2-6: vibration test in each of the three main axis for 2 hours @ 10 Gs (10 to 500 Hz at 100m/s^2 / 15 mm) FedEx Vibration Testing for packaged products 150 lbs or less
RS-232	RxD, TxD according to TIA/EIA-232-F
High-Speed Outputs 0, 1, 2, 3	I_{MAX}: 50 mA V_{OL}: ≤ ± 3 V @ 50 mA
Inputs 0 (Trigger), 1, 2, 3	V_{IL}: ≤ ± 6 V V_{IH}: ≥ ± 12 V I_{TYP}: 4.2 mA @ 24 V
Ethernet	10/100/1000. Full duplex or half duplex.
Program Storage	20 for each Application
Image Sensor	1/2.8-inch CMOS monochrome and color
Image Sensor Properties	Pixel size: 2.8 µm (H) x 2.8 µm (V)
Image Resolution (pixels)	1440 x 1080 (1.6 MP)
Lens Type	Autofocus: 6.2 mm, 16 mm (High Speed Liquid Lens)

Field of view diagrams

Working distances
Units: mm *(in)*

SP2801 with 6.2 mm lens

Minimum
50 *(1.97)*

32.5 *(1.28)* 24.4 *(0.96)*

Midpoint
300 *(11.8)*

195.1 *(7.68)* 146.32 *(5.76)*

Maximum
500 *(19.69)*

325 *(12.8)* 243.8 *(9.6)*

SP2801 with 16 mm lens

Minimum
200 *(7.87)*

50.4 *(1.98)* 37.8 *(1.49)*

Midpoint
450 *(17.72)*

113.4 *(4.46)* 85.1 *(3.35)*

Maximum
700 *(27.56)*

176.4 *(6.94)* 132.3 *(5.21)*
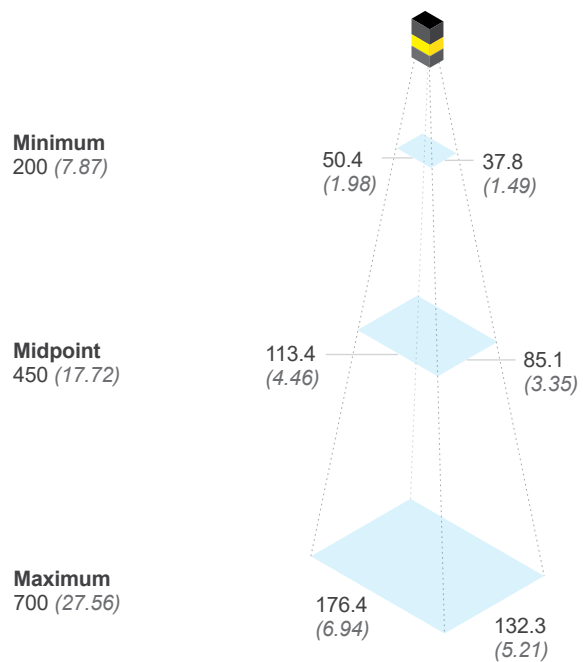
Product IDs and descriptions

IN-SIGHT SNAPP

	Product ID	Resolution	Mono/Color	Configuration	Lens	Light	Toolset
	SP2801MR-WR-AD	1.6 MP	Mono	Angled	6.2 mm HSLL	Red	Anomaly Detector
	SP2801CW-WR-AD	1.6 MP	Color	Angled	6.2 mm HSLL	White	Anomaly Detector
	SP2801MR-WR-2C	1.6 MP	Mono	Angled	6.2 mm HSLL	Red	2-Class Classifier
	SP2801CW-WR-2C	1.6 MP	Color	Angled	6.2 mm HSLL	White	2-Class Classifier
	SP2801MR-WR-AL	1.6 MP	Mono	Angled	6.2 mm HSLL	Red	All applications
	SP2801CW-WR-AL	1.6 MP	Color	Angled	6.2 mm HSLL	White	All applications
	SP2801MR-NS-AD	1.6 MP	Mono	Straight	16 mm HSLL	Red	Anomaly Detector
	SP2801CW-NS-AD	1.6 MP	Color	Straight	16 mm HSLL	White	Anomaly Detector
	SP2801MR-NS-2C	1.6 MP	Mono	Straight	16 mm HSLL	Red	2-Class Classifier
	SP2801CW-NS-2C	1.6 MP	Color	Straight	16 mm HSLL	White	2-Class Classifier
	SP2801MR-NS-AL	1.6 MP	Mono	Straight	16 mm HSLL	Red	All applications
	SP2801CW-NS-AL	1.6 MP	Color	Straight	16 mm HSLL	White	All applications

Components and accessories

MOUNTING BRACKETS

	Product ID	Description
	DM100-UBRK-000	Universal mounting bracket
	DM100-PIVOTM-01	Pivot mounting bracket
	DMBK-DMPIVOT-00	Tilted angle pivot bracket

Set up applications, directly on the factory floor, with VisionView

VisionView is a display panel that allows you to quickly train, update, and monitor jobs on the production line, without the need for a PC. Having this technology on the factory floor improves efficiency, facilitates easy device management, and provides real-time feedback for immediate process improvements.

www.cognex.com/VisionView

## CABLES

|	Product ID	Description
	CCB-84901-2001-XX	Ethernet cable, X-coded M12-8 to RJ-45, straight (2m, 5m, 10m, 15m, 30m)
	CCB-84901-2002-XX	Ethernet cable, X-coded M12-8 to RJ-45, right-angled (2m, 5m, 10m)
	CCB-84901-2RBT-XX	Ethernet cable, robotic X-coded M12-8 to RJ-45, straight (2m, 5m, 10m)
	CCB-M12X8MS-XCAC	X-coded to A-coded Ethernet cable adapter (5m, 10m, 15m)
	CCB-PWRIO-XX	Power and I/O breakout cable, M12-12 to flying lead
	CCB-PWRIO-XXR	Power and I/O breakout cable, M12-12 to flying lead, right-angled (5m, 10m, 15m)
	CCB-PWRIO-MOD-XX	I/O Module Cable M12-12 to DB15 (2m, 5m)
	CCB-M12xDB9Y-05	RS-232 connection cable
	CKR-200-CBL-EXT	I/O extension cable

Dimensions Units: mm, [in]

With 16 mm lens

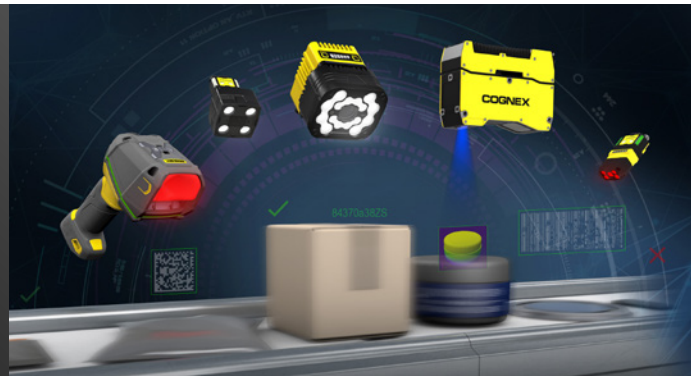[Download CAD files](#)
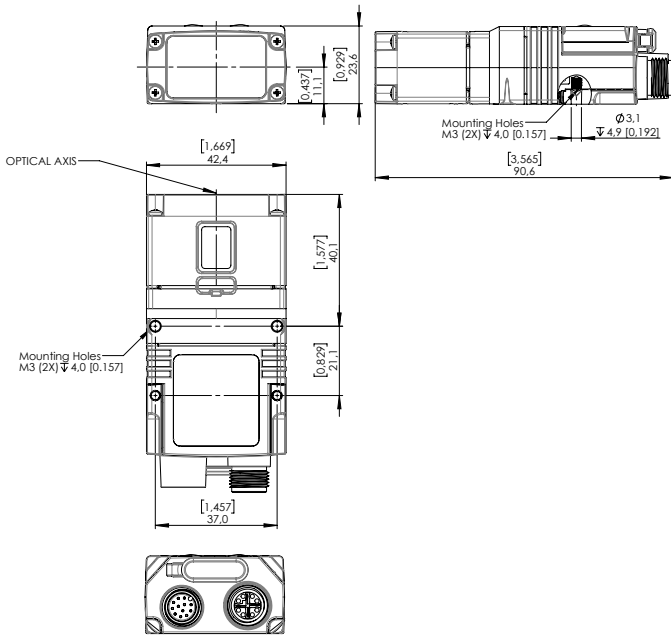
With 6.2 mm lens

[Download CAD files](#)
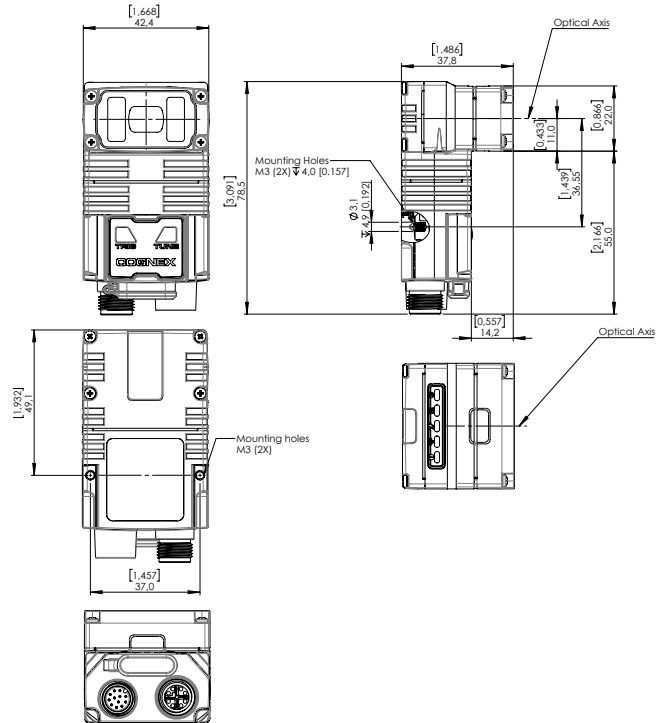
A solution for every need

With a familiar user experience, easily transition to another product within the Cognex portfolio as your needs change. We have a wide range of solutions to support you as your business grows and your application requirements evolve.

COGNEX

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

Corporate Headquarters   One Vision Drive Natick, MA 01760 USA

Regional Sales Offices

Americas					
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Brazil	+55 11 4210 3919	Italy	+39 02 3057 8196	Indonesia	+62 21 3076 1792
Mexico	+800 733 4116	Netherlands	+31 207 941 398	Japan	+81 3 5977 5400
		Poland	+48 717 121 086	Korea	+82 2 539 9047
Europe		Romania	+40 741 041 272	Malaysia	+6019 916 5532
Austria	+43 800 28 16 32	Spain	+34 93 299 28 14	New Zealand	+64 9 802 0555
Belgium	+32 289 370 75	Sweden	+46 21 14 55 88	Phillipines	+63 2 8539 3990
Czechia	+420 800 023 519	Switzerland	+41 445 788 877	Singapore	+65 3158 3322
France	+33 1 76 54 93 18	Turkey	+90 216 900 1696	Taiwan	+886 02 7703 2848
Germany	+49 721 958 8052	United Kingdom	+44 121 29 65 163	Thailand	+66 6 3230 9998
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		Asia-Pacific			
		Australia	+61 2 7202 6910		
		China	+86 21 5875 1133		

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