

ALIGNSIGHT ALIGNMENT SENSOR SERIES

Compact, powerful, and easy-to-use vision sensors for robot and stage alignment applications

Cognex AlignSight™ sensors offer an affordable solution for solving vision-guided robotic (VGR) and stage alignment applications. Packaged as a self-contained alignment solution, these alignment sensors deliver high levels of accuracy without the need for an external controller to run the application. Compact in form factor, AlignSight is easy to set up and calibrate enabling quick location and alignment of patterns and fiducials, even under adverse conditions or high level of degradation. With high accuracy, automatic hand-eye calibration, flexible robot integration library, and PLC integration, AlignSight is the preferred choice for machine builders, systems integrators, and end users in the electronics industry in need of highly accurate robot and stage alignment for assembly and process applications.

AS200 Series



AS800 Series



Robot-mount



Fixed cameras

Vision Guided Robotics (VGR)

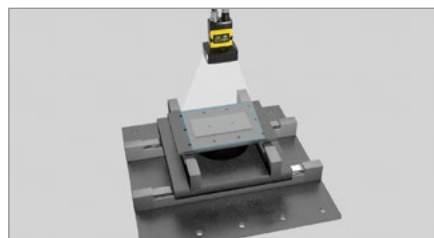
Using robots to perform pick & place and machine tending tasks has become commonplace in electronics manufacturing. AlignSight sensors provide support for vision-guided robotic applications through either one or more fixed-mount cameras for guided pick/guided place and grip correction; as well as robot-mounted configurations where the camera moves in conjunction with the robot. Common applications include:

- Insertion of various shaped connectors onto substrate
- Mounting of various shaped parts on a housing
- Loading/unloading of parts to/from testing machine

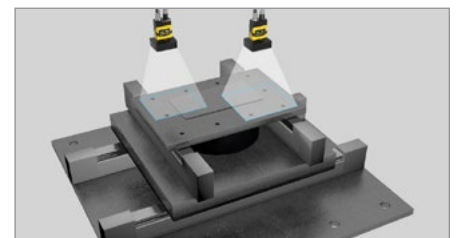
Stage Alignment

Many manufacturing processes in the electronics market require the speed and precision only a stage can provide. AlignSight enhances pre-alignment, fiducial and global alignment for assembly and process machines. The sensors support one or two camera configurations for stage alignment. Common applications include:

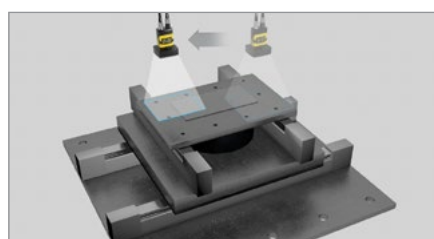
- Module Assembly
- Drillers
- Laser
- Dispensers



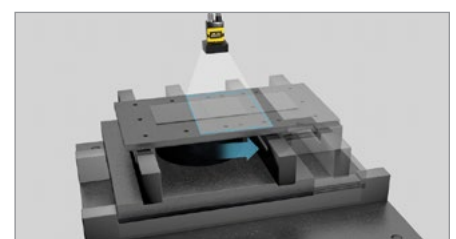
Single camera



Multiple cameras



Shuttling camera



Shuttling part

High performance

Manufacturers in the electronics industry require not only precision, but also the need for their machines to perform well despite variations in the manufacturing process. Using patented PatMax® vision technology, AlignSight accurately, quickly, and consistently locates parts, fiducials, and patterns so production moves smoothly.



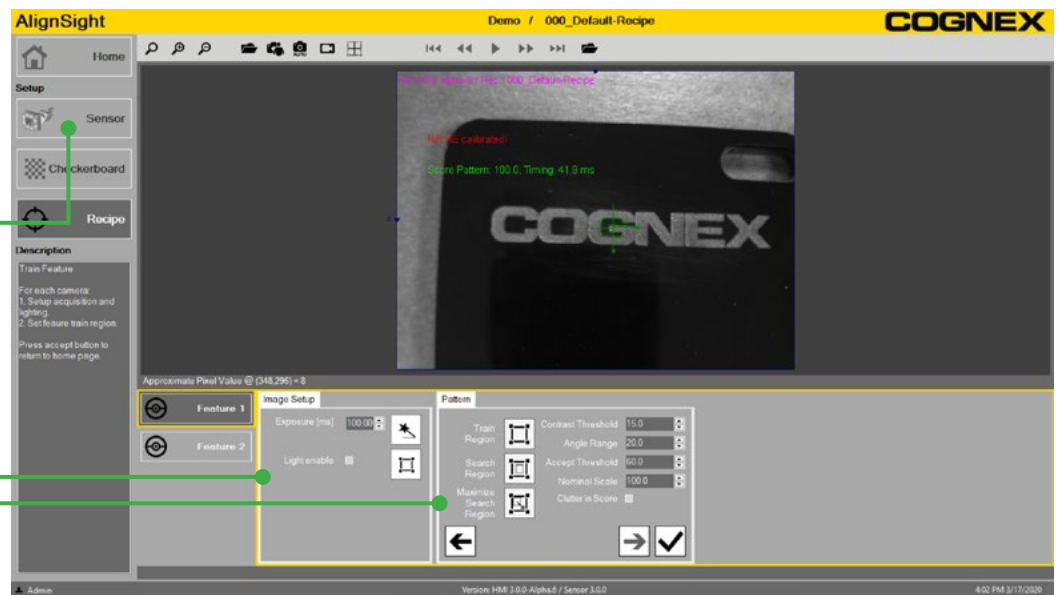
Achieve faster deployment through simple setup

Manufacturers expect their automation lines to be up and running as soon as possible to maintain efficiency and get products to market on time and in volume. Simple to deploy, AlignSight enables the automation engineer or system integrator to get their application into production faster through quick set-up, testing, and validation. No need for a vision engineer. Quickly calibrate a robot or stage with AlignSight using Cognex Auto-Calibration technology with just a single click.

Easy-to-use Graphical Setup Wizard

Three Step Configuration:

- 1 Connect the camera
- 2 Set-up the image
- 3 Train your features



Compact packaging means easy integration

Optimizing floor space is important to manufacturers, so automation machines must be compact. With its built-in camera, processing and I/O, AlignSight enables machine builders and systems integrators to save panel space and optimize overall machine footprint by eliminating the need for a separate PC or controller to run the alignment application.

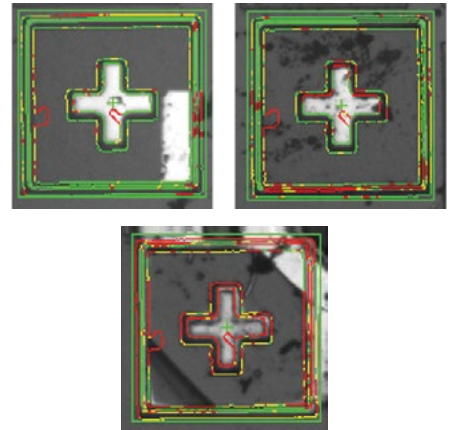
Key enabling technologies

Industry leading feature finding

PatMax object location technology

Cognex PatMax is the industry’s leading object location tool. PatMax learns an object’s geometry using a set of boundary curves that are not tied to a pixel grid, and then looks for similar shapes in the image without relying on specific gray levels. The result is a revolutionary improvement in the ability to accurately find objects despite changes in angle, size, and shading.

- Patented PatMax technology identifies and locates fiducials, parts, and patterns on components
- Provides precise alignment guidance to robots and stages—to meet the accuracy needs of the electronics industry
- Delivers consistent, reliable target detection and location regardless of variations in manufacturing process



Corner Finder

Corner Finder calculates the corner position of a part using the intersection of two-part edges based on the location of a pattern or fiducial located on the part. Corner Finder is used in those cases where the corner is curved or not sharp.

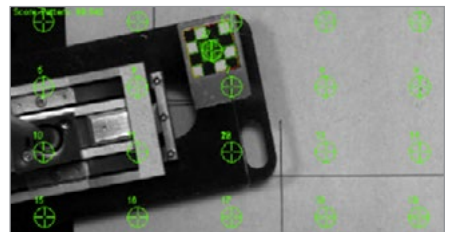


Rapid calibration

High-precision alignment applications require calibration between the camera and the robot or stage to unify coordinate systems for proper positioning. In addition, high-precision alignment requires that distortion corrections be made due to effects of the lens and camera angle.

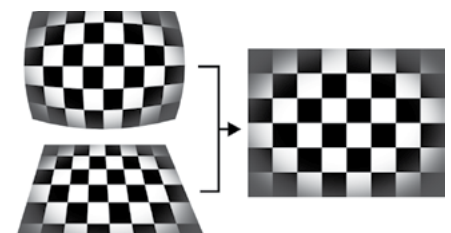
Hand-eye calibration

AlignSight offers two part-based hand-eye calibration methods: Automatic Hand-eye calibration and Manual hand-eye calibration.



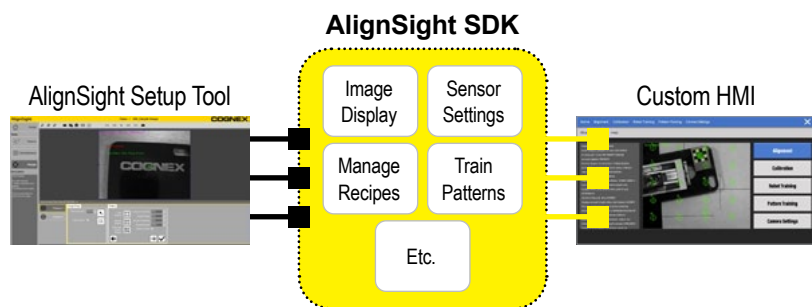
Optical distortion calibration

Uses a checkerboard calibration target to correct for distortion caused by the lens and camera tilt

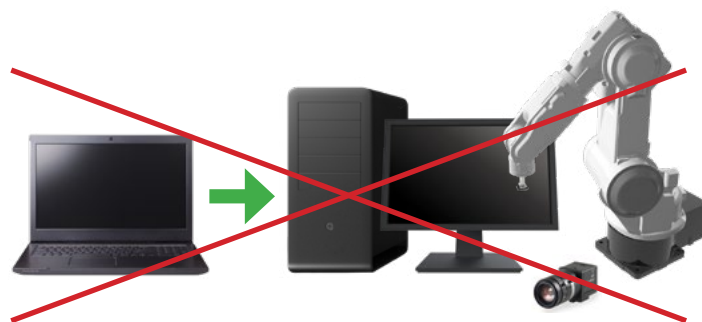


Machine integration

Unlike controller-based solutions that require a separate HMI unit, AlignSight can be set-up and controlled through the automation machine's HMI by using the AlignSight Software Developer Kit (ASDK). Users can run sensor setup, control sensor settings, manage recipes, and train patterns with a custom developed HMI.



Machine configurator can configure both robot and vision with AlignSight SDK

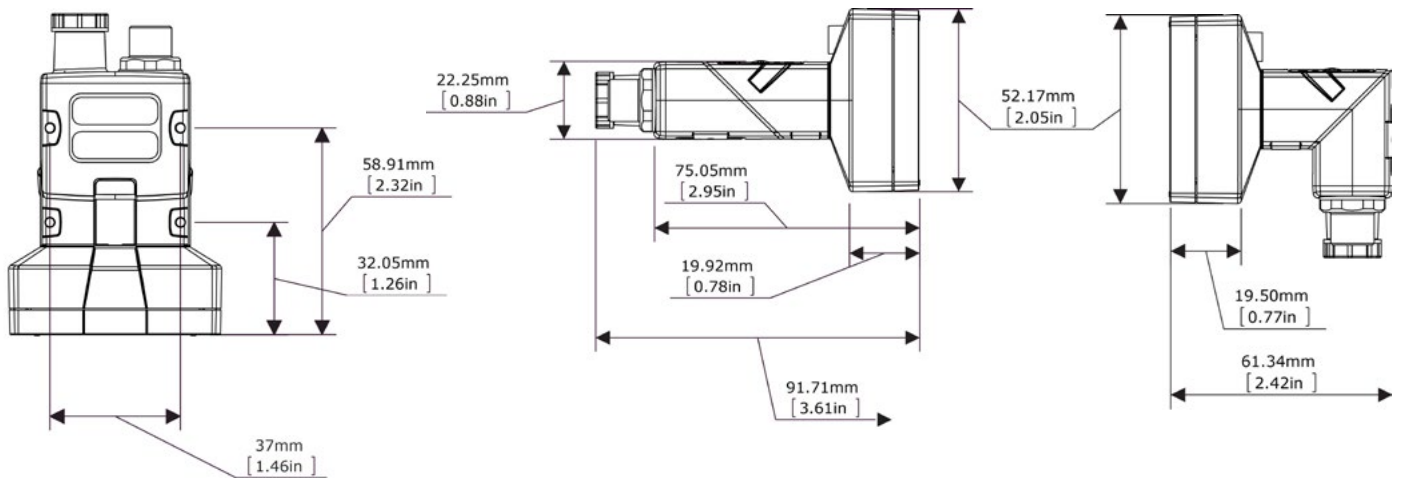


Controller vision systems require independent configuration for robot and vision

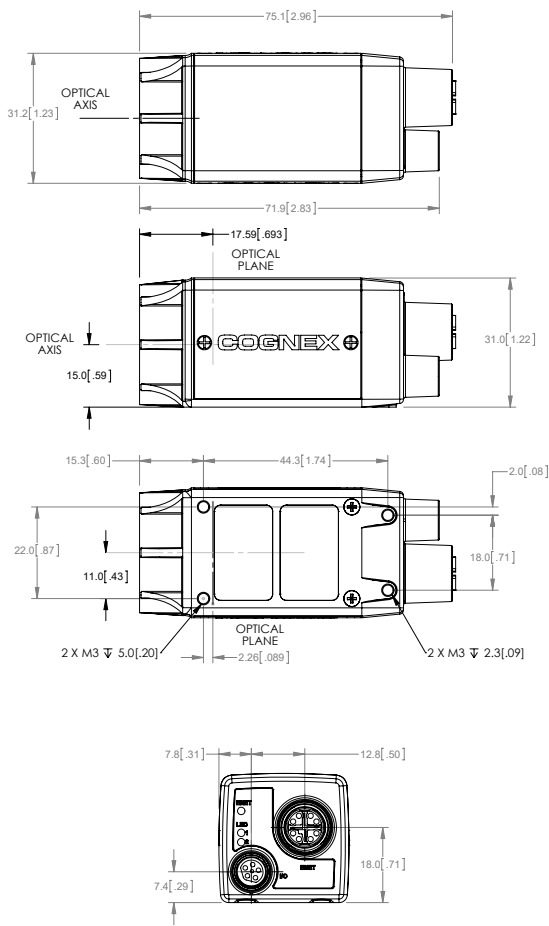
AlignSight Features

Supported Models	AS2xx / AS8xx
Application Focus	Golden pose alignment Vision-guided robotics
Max # Sensors/System	2
Max # Features/System	4
VGR Configurations	Fixed mount Robot mount Grip correct
Calibration	Optical distortion correction Automatic, part-based, hand-eye calibration
Shuttling Camera	Single camera
Shuttling Part	Single camera
Custom User Interface	Yes – ASDK
Feature Finding	PatMax technology Corner Finder
Direct Robot Support	Mitsubishi, Denso, and Nachi
Cognex Open Robot API	Yes

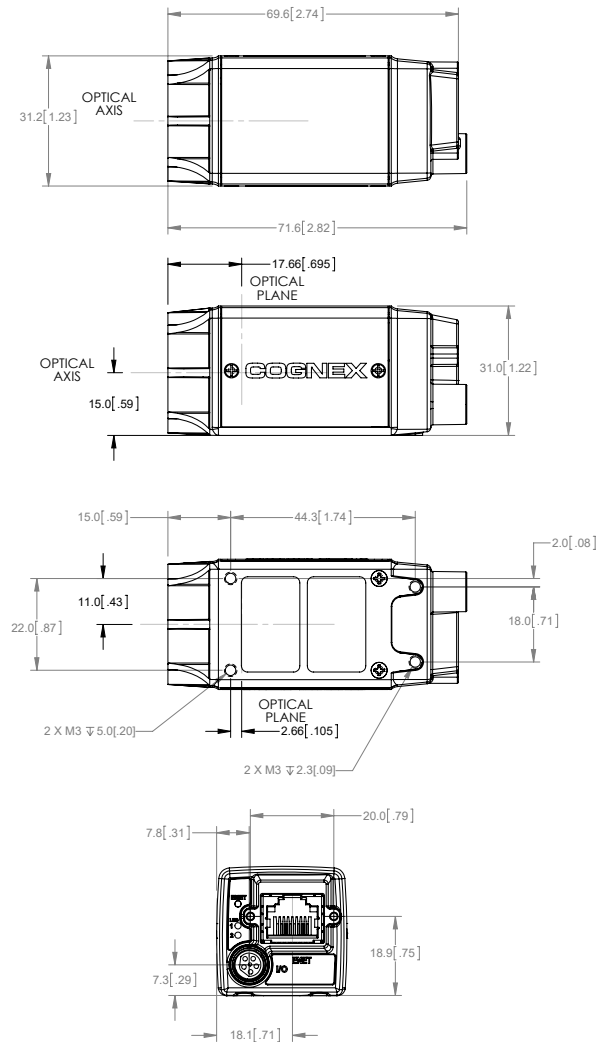
AlignSight 200 Series



AlignSight 820, 840X, AS842X Series



AlignSight 845X Series



SPECIFICATIONS

	AS200	AS200X	AS820	AS820X	AS822X	AS840X	AS842X	AS845X
Resolution	1280 x 960		640 x 480		1600 x 1200	640 x 480	1600 x 1200	2592 x 1944
Image Type	Monochrome							
Sensor Type	1/3 inch, CMOS, Global shutter		1/1.8 inch, CMOS, Global shutter				CMOS, Rolling shutter	
Lens Type	C-mount, S-mount/M12 lenses		C-mount					
Built in IO	1 dedicated trigger in, 2 high speed outputs (including strobe). Additional I/O available via external I/O modules: CIO-MICRO							
Power	24 VDC, 48 W (2.0 A)		48 VDC, 6.49 W maximum per Class 2 PoE					
Industrial Connectors	Industrial M12: Ethernet; M12: Power/ I/O		M12: Power/Ethernet; M8: I/O				RJ45: Power/ Ethernet; M8: I/O	
Dimensions	In-line configuration: 92 mm x 60 mm x 52 mm Right-angle configuration: 61 mm x 60 mm x 52 mm		31 mm x 31.2 mm x 75.1 mm				31 mm x 31.2 mm x 71.6 mm	
Weight	200 g		132.2 g				78 g	
Network Speed	1GB (1000)/100/10 Mbps							
Industrial Protocols	SLMP, TCP/IP							
Regulations/ Conformity	CE, FCC, KCC, TÜV SÜD NRTL, RoHS							

COGNEX

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

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