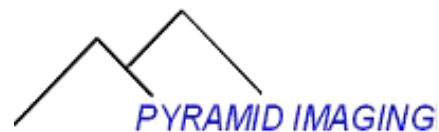
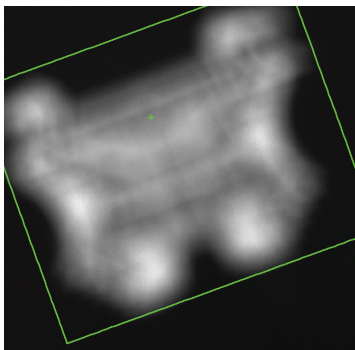


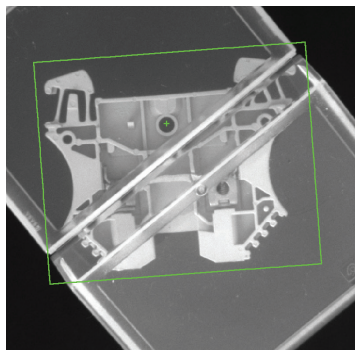
# THE INDUSTRY BENCHMARK FOR VISION PERFORMANCE



Whether you need vision for inspection or for robotic guidance, VisionPro stands apart from others by offering the industry's most proven, reliable tools. These tools, found only in the Cognex vision tool library, have made VisionPro the industry's benchmark for vision performance.



PatMax-Blurred



PatMax-Occluded

## PatMax

The critical tool for object location is PatMax, the patented software tool for part location. PatMax is the industry's gold standard for part and feature location, providing accuracy and repeatability under the most challenging conditions.

## PatFlex

PatFlex locates objects despite surface perspective or distortion, enabling the use of tools on complex surfaces.

## PatInspect

With one-step part location and defect detection using patented algorithms, PatInspect reliably detects flaws even on the edges of parts where other techniques have trouble giving reliable results.

## PatMax Synthetic

PatMax Synthetic automates model training using CAD data or our unique Model Maker.

## PatInspect™ Area

PatInspect Area provides high-accuracy inspection, statistical training and normalization techniques to compensate for lighting variations.

## PatMax Autotune

PatMax Autotune can be trained on variations of the feature being extracted, increasing the ability to locate the target.

## PatMax MultiModel

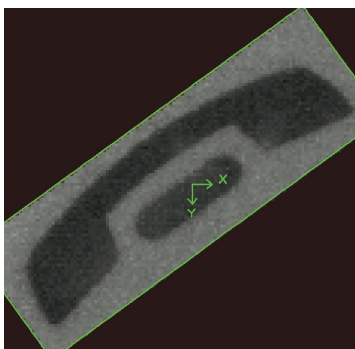
PatMax MultiModel can quickly and accurately differentiate a pattern among a list of trained patterns in a single tool.



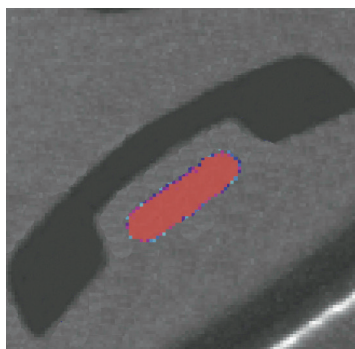
PatFlex-Trained



PatFlex-Distorted

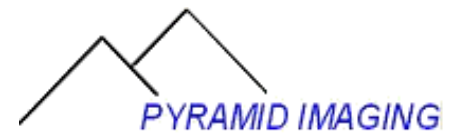


PatInspect-Trained



PatInspect-Defective

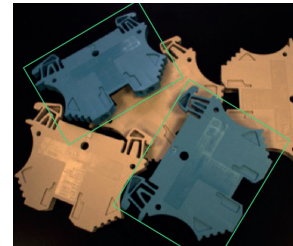
# VISION POWER TOOLS



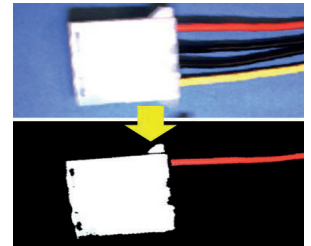
## Color Tools

Locate, sort, extract match, identify, and monitor color images

<b>SearchMax™</b>	The ultimate tool to find color samples allowing translation, rotation, scale and skew.
<b>Color Extractor</b>	Simple color definition for complex color scenes. High-speed color extraction for food and packaging.
<b>Composite</b>	Accurately discriminates between subtle Color Match color variations.
<b>Color Match</b>	High-speed identification and sorting of colored parts.
<b>Color Segmentation</b>	Creates a greyscale image from selected colors, enabling other tools to be applied.



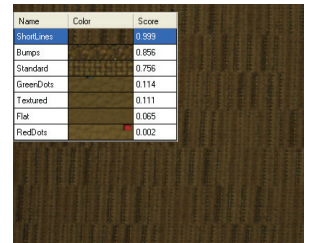
SearchMax



Color Extractor



Color Match

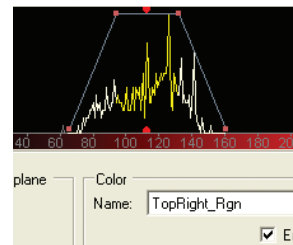


Composite Color Match

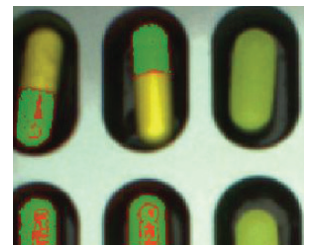
## Identification and Verification

Achieve optimum ID reading and character verification

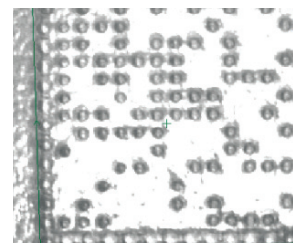
<b>IDMax™</b>	Reads even the most degraded data matrix codes, delivering consistent high read rates needed for part traceability.
<b>Industrial Code</b>	Reads multiple symbologies—without being told how many or which standard—even when codes are randomly positioned and rotated.
<b>2D Symbol</b>	Verifies the quality of 2D symbols Verification using AS 9132.
<b>OCRMax™</b>	High-speed character reading and verification, even when the print is extremely distorted, using both image-based and printer font-based training.



Color Definition



Color Segmentation



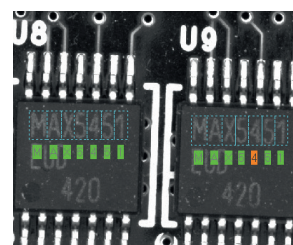
IDMax



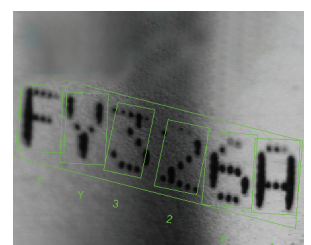
Code Reading

## 3D

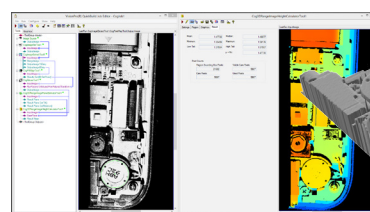
<b>Profile analysis</b>	Shape fitting and a variety of geometric tools to measure three-dimensional features.
<b>Field calibration</b>	Achieves optimal accuracy despite errors in mounting and motion.
<b>Image stitching</b>	Combines the power of multiple scanning sensors to increase resolution or get wider coverage.



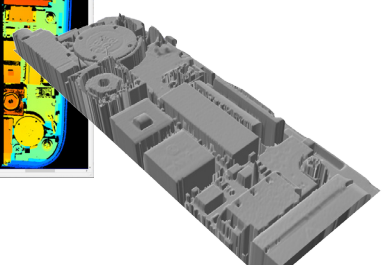
OCR



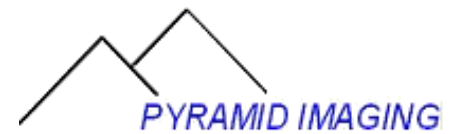
OCRMax



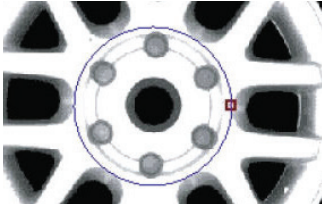
VisionPro 3D



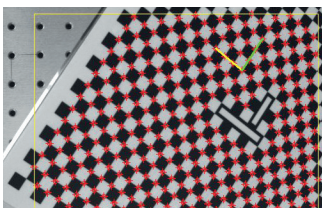
# ESSENTIAL VISION TOOLS



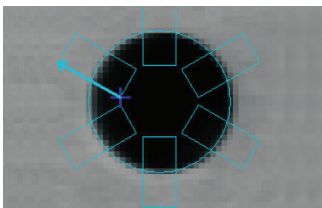
Essential Tools, combined with Power Tools, provide the most comprehensive set of industrial-grade vision tools, optimized to deliver high-speed performance in all applications.



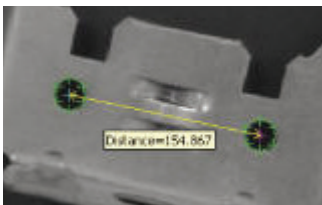
Blob Analysis



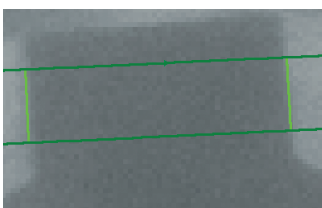
Checkerboard Calibration



Find Circle



Measure Geometry



Caliper



Image Processing

Find Geometry	Find lines and circles
Best Fit Geometry	Create best fit lines and circles
Measure Geometry	Measure distances, angles, and intersections
Create Geometry	Construct reference geometry
Blob Analysis	Measure area, size, shape, other geometric properties
Checkerboard Calibration	Correct for non-linear, optical, and perspective distortion
Calibration	Calibrate camera pixels to real-world units
Caliper	Measure sub-pixel location of edges
CNLSearch	Locate an object using normalized correlation
Fixturing	Position tools dynamically, based on location tool results
Sobel Edge Detection	Detect edge location, intensity and direction
Polar Unwrap	"Unwrap" an annular region into a rectangular image
Image Averaging	Create images based on the average of previous images
Grayscale Morphology	Erode, dilate, open, and close
Gaussian Filter	Smooth or sample images
Image Add/Subtract	Add or subtract pixels in two images
Histogram Analysis	Count pixels by gray value
Copy Region	Copy multiple images into a single image
Affine Transform	Rotate, scale, or translate an image
Pixel Mapping	Re-assign the gray value of pixels based on a lookup table
NxM Filters	Convolve, median, erode, dilate, with any filter size
Multiply/Divide	Multiply pixel gray values by a constant
Image Sharpness	Determine the focus of an acquired image
Image Convert	Transform color images for analysis with other tools