L: 579 mm
W: 348 mm
H: 462 mm
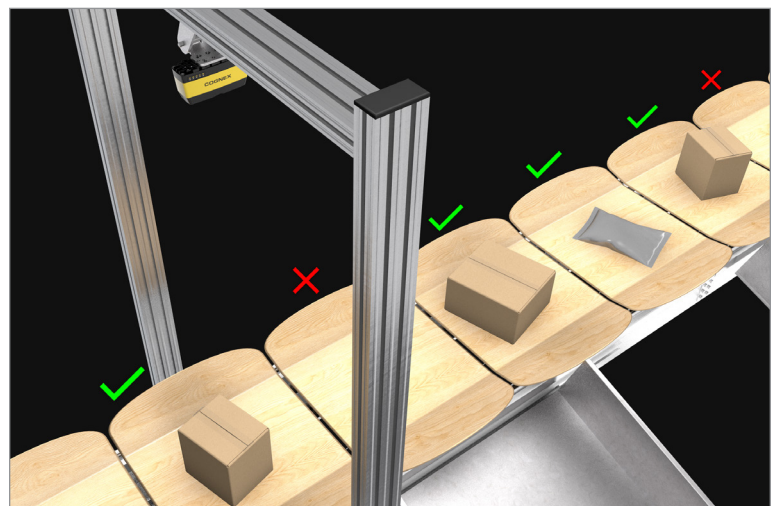
COGNEX

LOGISTICS SOLUTIONS GUIDE

Logistics automation solutions for retail distribution,
e-commerce, and parcel processing organizations

COGNEX

LOGISTICS SOLUTIONS

POWER UP YOUR OPERATIONS WITH IMAGE-BASED BARCODE READERS AND VISION SYSTEMS

As retail distribution, e-commerce fulfillment, and parcel processing industries continue to grow, the pressure to meet customer demands and performance metrics is greater than ever. Successful companies are scaling and optimizing operations while minimizing manual work and equipment downtime. Cognex machine vision and barcode reading solutions deliver high accuracy and robust performance which helps improve traceability, increase throughput, and reduce costs associated with manual rework. In addition, these solutions provide rich real-time performance data and trending insights that help optimize operations.
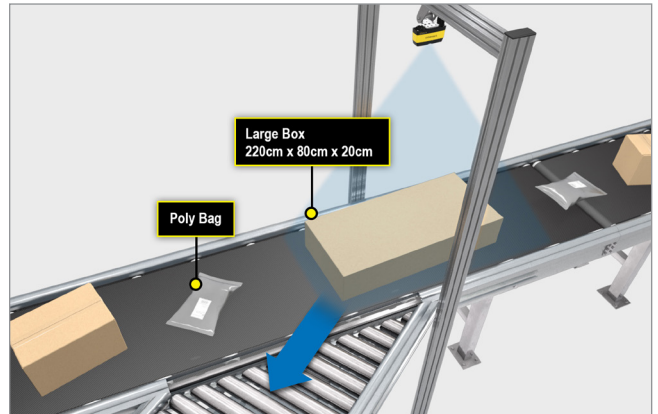
INBOUND/RECEIVING

No matter the size of your operation, the logistics process begins with receiving inbound goods. With demand growing, maintaining efficiency and throughput is more important than ever. Using high performance and reliable image-based barcode readers and machine vision systems, organizations receive incoming product faster and track product more effectively as it moves through the facility.
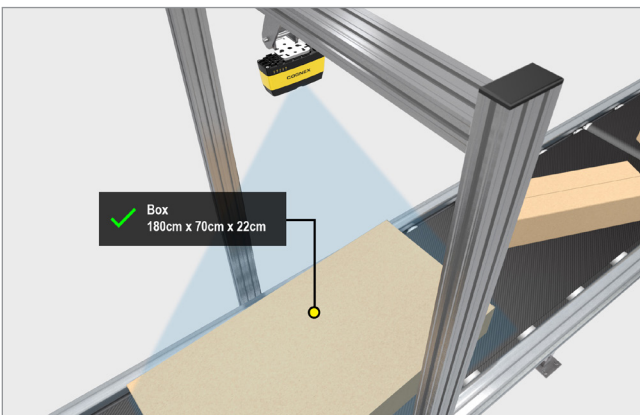
Hands-Free Inbound Scanning

Cognex hands-free barcode reading solutions enable operators to scan packages without picking up and putting down a handheld reader, allowing them to process more packages per day due to ease of use, high read rates, and ergonomic safety.

Inbound Product Categorization

The 3D-A1000 Dimensioning System captures dimensional information and categorizes incoming freight preventing handling damage downstream and provides item data for proper storage.
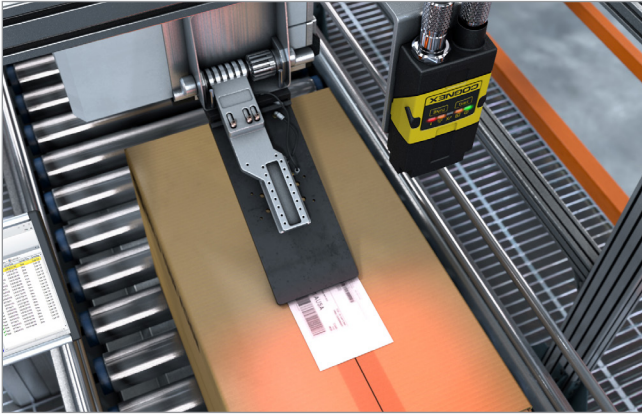
Manifest Verification

The 3D-A1000 Dimensioning System captures volumetric and dimensional information of incoming product improving traceability, verifying what was on the manifest, accurately tracking inventory.

Pallet Scanning

With a large depth-of-field and wide field-of-view, Cognex pallet scanning systems read incoming pallet identification labels quickly and accurately, even when surrounded by other labels and plastic shrink wrap.

Print and Apply During Inbound Processing

Cognex image-based barcode readers use code quality metrics and grading to identify and reject poorly printed codes attached during the inbound process, allowing facility managers to identify and fix printer errors to minimize problems downstream.
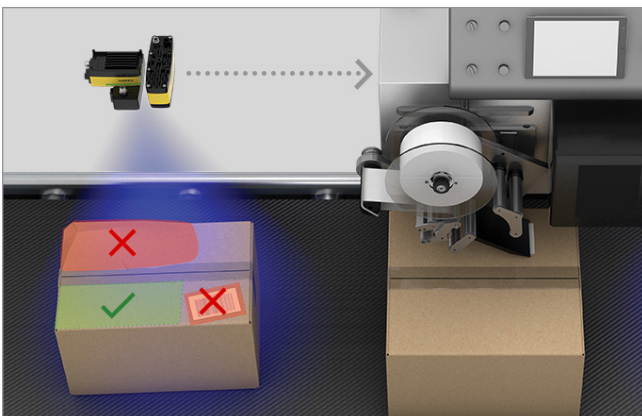
Automated Inbound Receiving

Overhead hands-free barcode reading stations or Modular Vision Tunnels decipher codes on various sides of a package, at extreme angles, and different orientations, reducing rework and lowering costs.
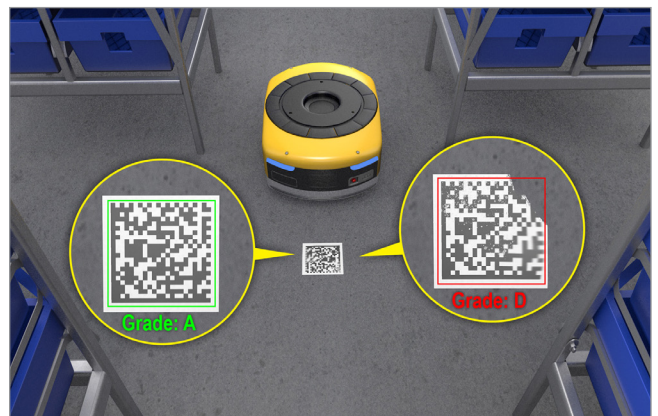
ORDER FULFILLMENT

Consumer shopping behavior has shifted and blurred the lines between retail distribution and traditional e-commerce fulfillment platforms. This transition coupled with rising demand means more and more single item orders flow through the system with increasingly short delivery expectations. High performance image-based barcode readers and machine vision systems are increasingly playing a critical role in helping organizations meet increased order demand and increase the efficiency of the order fulfillment process, while improving order accuracy and delivering on customer promises.
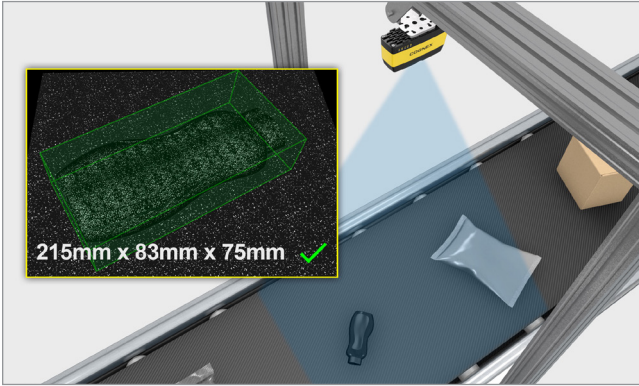
Label Placement and Verification

The 3D-A1000 leverages 2D, 3D, and Deep Learning technology to enable the accurate placement of labels and confirmation that labels have been applied correctly and in the right location.

2D Barcode Guidance for AGVs

Barcode readers quickly and accurately read 2D codes on the floor, even if they are smudged or damaged, allowing automatic guided vehicles (AGVs) to navigate the warehouse to bring product to pick station operators. Print Quality Metrics grade codes and report when barcodes start to degrade so they can be fixed before there is a problem.

Item Verification

215mm x 83mm x 75mm ✓

The 3D-A1000 Dimensioning System quickly and accurately captures volume and dimensioning data of picked items which increases order accuracy, improves inventory management, and lowers return costs.

Zone Routing

Code 128

Image-based barcode readers, with advanced algorithms and decoding technology reliably read damaged, or non-aligned barcodes on totes in small egress situations to send them to the right pick station.

Tote-Fill Optimization

✗ Fill capacity: 33%

✓ Fill capacity: 96%

The 3D-A1000 dimensioning system, which features a 3D and 2D camera system, calculates tote capacity and fill heights and compares those values to established target values. The system can be configured to flag and alert over or underfilled totes and diverts them for correction, increasing order accuracy and reducing costly challenges due to lost or damage products.

Pick and Pack

Cognex image-based barcode technology quickly reads omnidirectional, damaged, smudged, and distorted codes and codes at extreme angles, improving pick and pack sorting times and maximizing throughput.
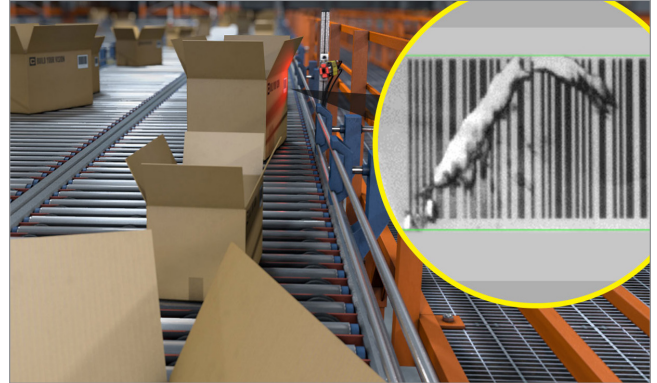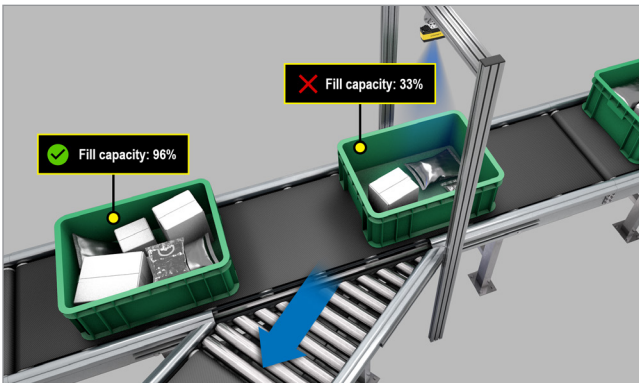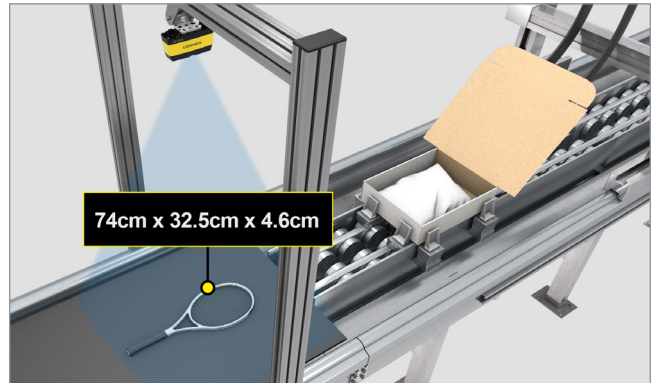
Print and Apply with Verification

Image-based barcode readers catch label print and placement issues early on, allowing facility managers to identify and fix label or printer errors to minimize problems downstream.

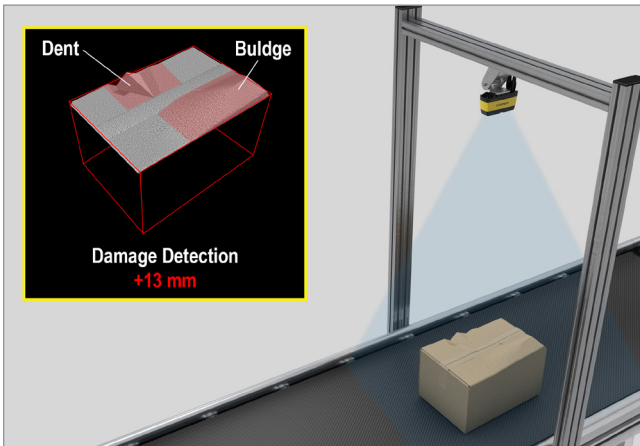## Packaging Optimization

74cm x 32.5cm x 4.6cm

The 3D-A1000 Dimensioning System automates the volumetric measurement of picked products allowing operators to select the best packaging option, reducing manual handling and measurement time, increasing operator efficiency, and reducing shipping costs.
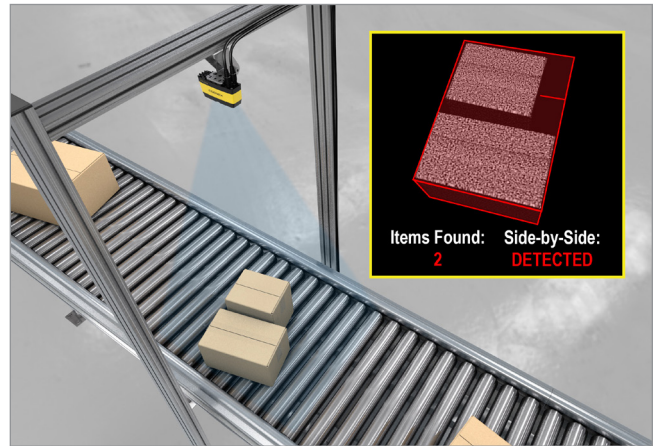
SORTATION

E-commerce fulfillment, retail distribution, and parcel processing facilities rely on their ship sorting system to rapidly sort outgoing product and parcels prior to shipment. As demand has increased, these organizations are under more pressure to ensure orders reach the right destination within the expected delivery timeframe. Highly accurate barcode readers and machine vision systems are playing a larger role in helping organizations improve sorting throughput, decrease product loss, and optimize their operations with process data.
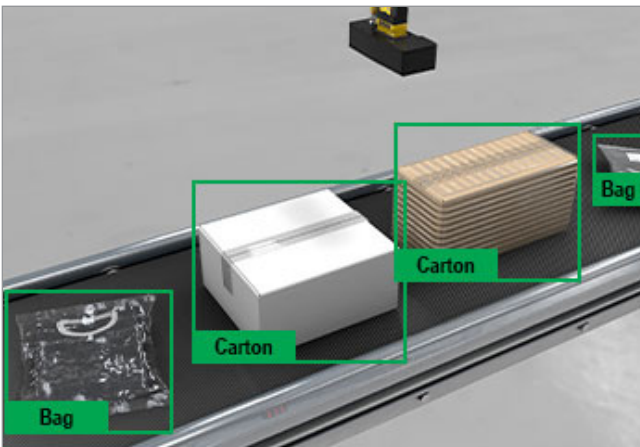
Damage Detection

The 3D-A1000 uses a 3D and 2D camera system to automatically detect damage to boxes such as dents, bulges, crushed parts, or open flaps.

Side-by-Side Detection

The 3D-A1000 Item Detection system captures dimensional data, forms a 3D point cloud image, and identifies side-by-side situations to eliminate skewed inventory counts, "lost" items, and double shipments.

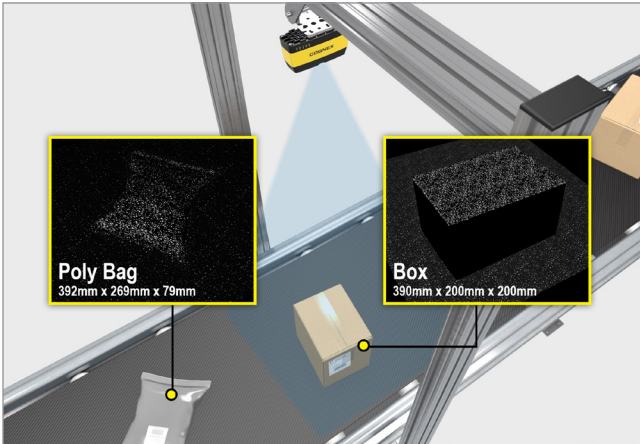## 2D Item Detection and Sortation

Powered by edge learning technology, the In-Sight 2800 Detector solves difficult 2D item detection and object sortation applications with simple example-based training and powerful AI algorithms, including presence/absence, item sortation and classification, and process issue detection.
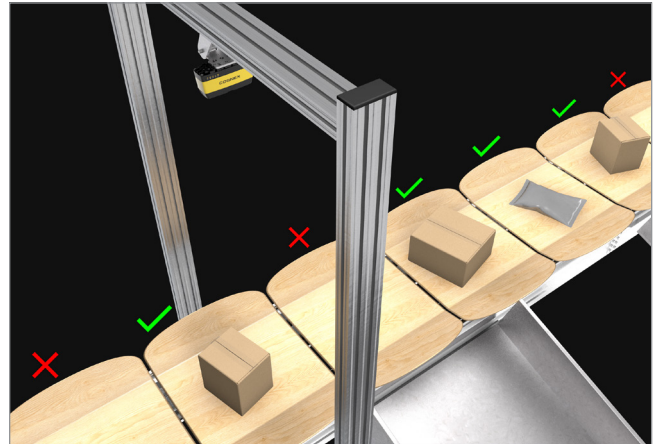
Robotic Sorting

Reduce manual interventions and streamline efficiencies by scanning products and packages as they are transferred by a robot.

Categorizing Packages Prior to Shipment

The 3D-A1000 Dimensioning System quickly and accurately categorizes products to ensure proper handling, which reduces damage to packages and keeps the sorter line moving smoothly.
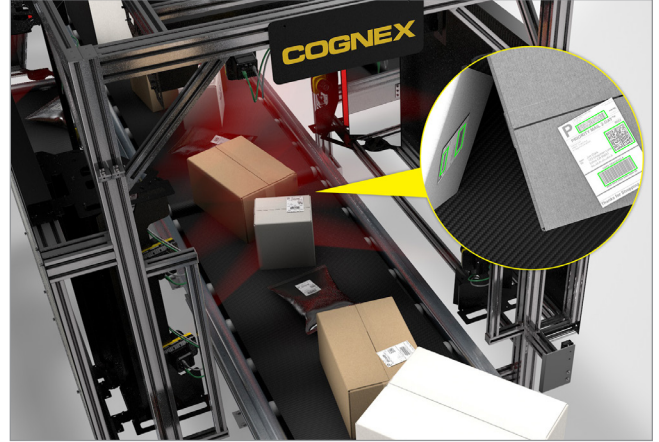
Item Detection

The 3D-A1000 Item Detect System use 3D and 2D data to correctly identify objects among dirt, dust, and foreign objects on the sorting belt, and provide information and any error codes to keep sorting systems running efficiently.

Ship Sorter Induction

Image-based barcode readers use advanced algorithms and decoding technology to quickly read codes on parcels and packages entering the sorting system, adding traceability and efficiency to the sorting process.

Ship Sorter Scanning

Cognex Modular Vision Tunnels are designed to read damaged codes at extreme perspectives on all sides of the box, even with the high speed and small gapping requirements of today's ship sorters. This allows a facility to increase throughput, without impacting sort accuracy.

OUTBOUND LOGISTICS

Retail distribution, e-commerce fulfillment, and parcel processing facilities are under more pressure to deliver products to customers due to rising demand. Reliable and highly accurate machine vision systems and barcode readersare increasingly critical to help operations teams improve traceability, load their trucks more efficiently, and make sure outbound packages get to the correct place, on time and at optimal cost.
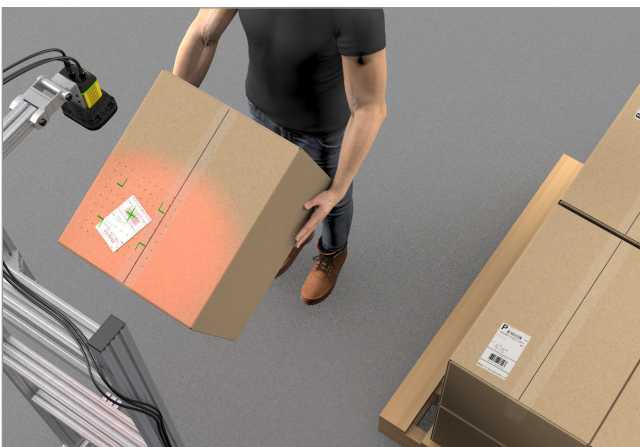
Estimating Shipping Costs

The 3D-A1000 Dimensioning System captures and reports dimensional and volumetric information allowing operators to select the optimal packaging and more accurately estimate shipping costs.
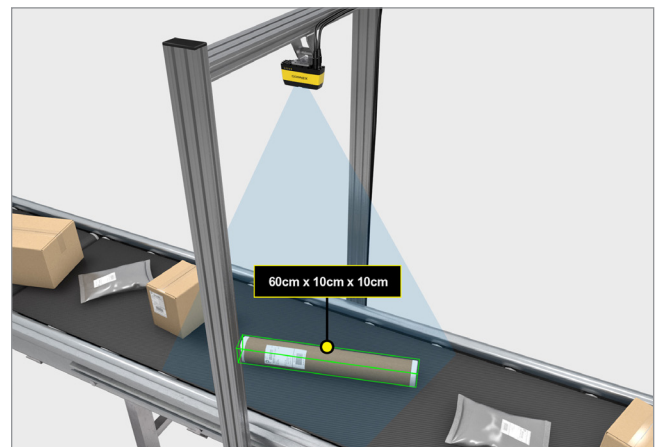
Outbound Scanning

Modular Vision Tunnels help distribution centers improve accuracy and traceability of outbound shipping processes by providing a hands-free, efficient solution to verifying the correct packages are loaded onto the truck.

Palletizing Outbound Shipments

Deploying image-based barcode readers overhead helps facilities load outgoing trucks faster by enabling operators to build pallets more efficiently than using a hand scanner.
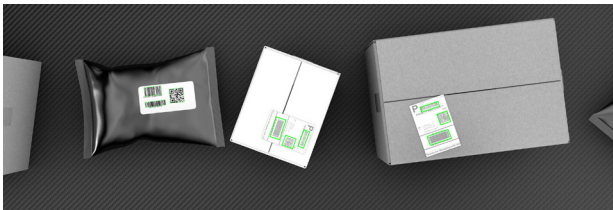
Truck Load Optimization

The easy-to-use 3D-A1000 Dimensioning System delivers dimensional and volumetric information for outgoing freight allowing outbound logistics operators to pack their trucks efficiently to optimize transportation costs.

TECHNOLOGY
FOR OPTIMAL PERFORMANCE AND TRACEABILITY

1D/2D QuickSort

1D/2D QuickSort™ is an algorithm that empowers Modular Vision Tunnels with the DataMan 580 to decode multi-symbology labels up to three times faster than conventional methods. This technology is designed to increase throughput on high speed lines with short package gaps.
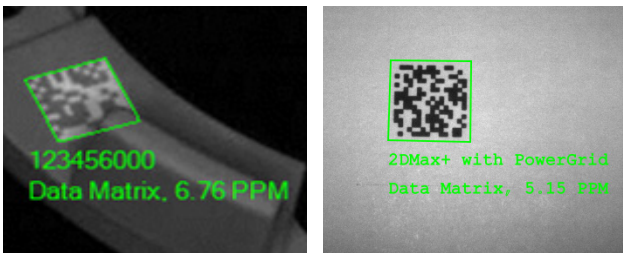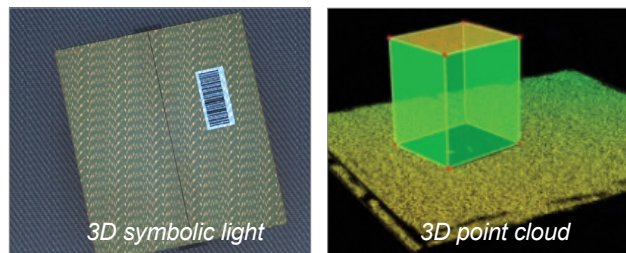

2DMax with PowerGrid

2DMax® with PowerGrid® is a breakthrough 2D decoding algorithm and technology designed to read 2D codes with significant damage to or complete elimination of a code's finder pattern, clocking pattern, or quiet zone.

Edge Intelligence

Cognex Edge Intelligence (EI) technology transforms big data into smart data to improve overall equipment effectiveness (OEE) and throughput. EI allows users to configure multiple devices at once and begin trending important system perfor-mance measurements within minutes. Users can be alerted when issues occur, and operators can identify root causes faster and resolve them sooner using powerful analytics and image view tools.

1DMax with Hotbars Technology

1DMax® with Hotbars® is optimized for omnidirectional 1D barcode reading, decoding up to 10x the speed of a conventional barcode reader, even with increased noise, limited contrast, and damage.
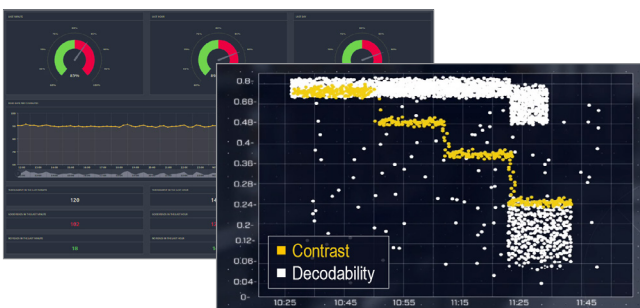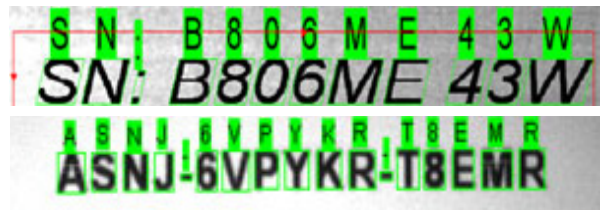

Symbolic Light Technology

Unlike conventional methods, the 3D-A1000 uses patented 3D symbolic light technology to freeze motion with a single image. This generates more accurate 3D point cloud data, eliminating the need for complex calibration and encoder integration.

3D symbolic light   *3D point cloud*

OCRMax

OCRMax™, a font-trainable optical character recognition and verification (OCR and OCV) tool, has set industry records for ease of use, read rates and speed in complex images. This powerful algorithm prevents misreads, handles process variations, and provides easy font management.

THE GLOBAL LEADER
IN MACHINE VISION AND BARCODE READING

For over 40 years, Cognex has helped the world's most innovative companies make their manufacturing and distribution faster, smarter, and more efficient.

Cognex vision systems and barcode readers help customers improve product quality and operational performance by eliminating defects, verifying assembly, and tracking information at every stage of the production process. Using data captured by Cognex vision systems and barcode readers, companies can monitor, update, and change production plans in real-time across global supply chains.

Smarter automation using Cognex products means fewer errors, which equates to lower costs and higher customer satisfaction. And Cognex is constantly applying new techniques, like artificial intelligence, to enable companies to evolve their automation strategy to meet today's and tomorrow's needs.

With a wide range of solutions and a large network of global vision experts, Cognex makes it possible to **Build Your Vision.™**
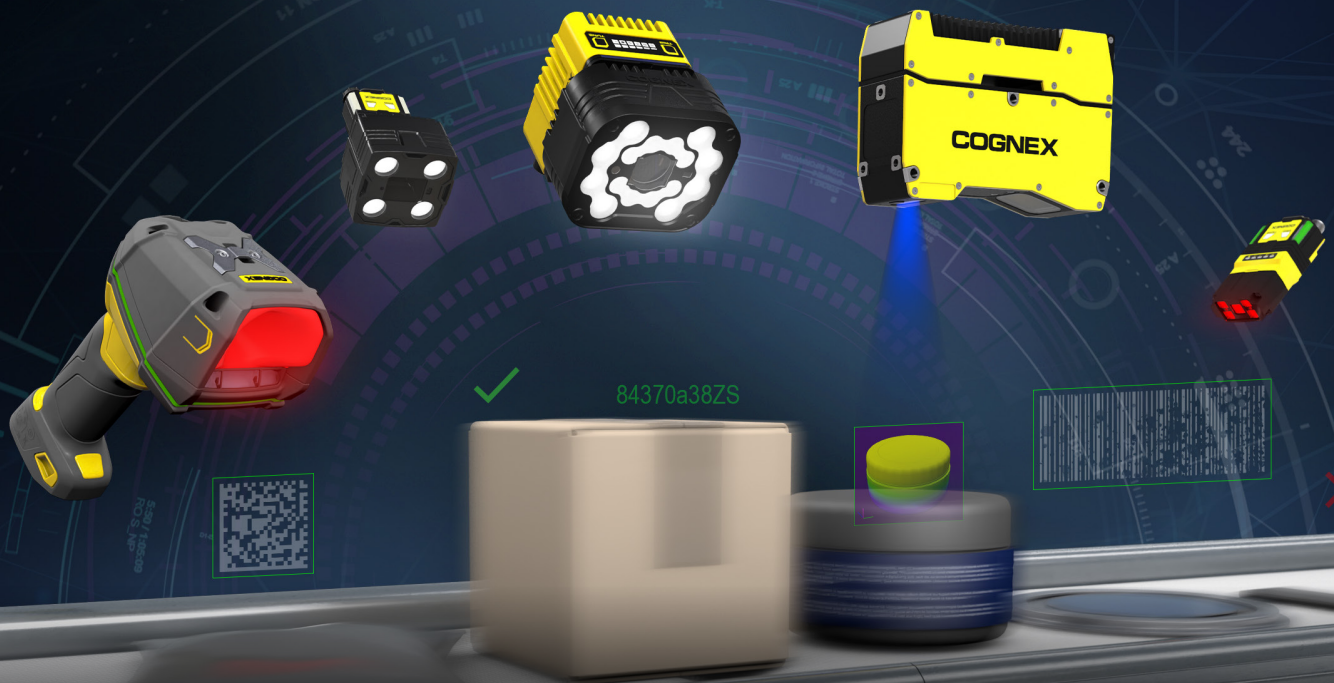
$1 BILLION
2022 REVENUE

OVER 42
YEARS IN THE BUSINESS

500+
CHANNEL PARTNERS

GLOBAL OFFICES IN
20+ COUNTRIES

4,000,000+
SYSTEMS SHIPPED

84370a38ZS

BUILD YOUR VISION

Vision Systems

Automate inspection tasks, from defect detection to assembly verification and text reading, with easy to deploy vision systems.

www.cognex.com/machine-vision

Barcode Readers

Track and trace, from the floor to dock door, with powerful readers and verifiers designed to handle any code type.

www.cognex.com/barcodereaders

Industry Solutions

Solve applications across a wide range of industries with flexible and reliable machine vision and barcode reading solutions.

www.cognex.com/solutions

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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www.cognex.com