LOGISTICS BARCODE READING SYSTEMS AND MODULAR VISION TUNNELS

Cost effectively scale your scanning operations to meet the needs of today and tomorrow

annolution
MACHINE VISION

COGNEX

COGNEX

LOGISTICS BARCODE READING SYSTEMS AND MODULAR VISION TUNNELS

Seamlessly scale your barcode reading operations to meet the needs of today and tomorrow

The shift to online shopping has come with expectations of same day and next day delivery, accelerating the need for omni-channel fulfillment strategies that leverage both e-commerce and brick and mortar stores. However, this creates operational challenges around increasing speed and scalability while reducing product loss.

Cognex barcode reading systems and multi-sided modular vision tunnels quickly read codes on packages or parcels and communicate data to facility systems. These solutions help retail distribution, e-commerce fulfillment, and parcel processing organizations:

- Maximize facility throughput at lower operational costs
- Scale growth efficiently
- Improve traceability from when a product enters a facility to the point where it leaves the facility
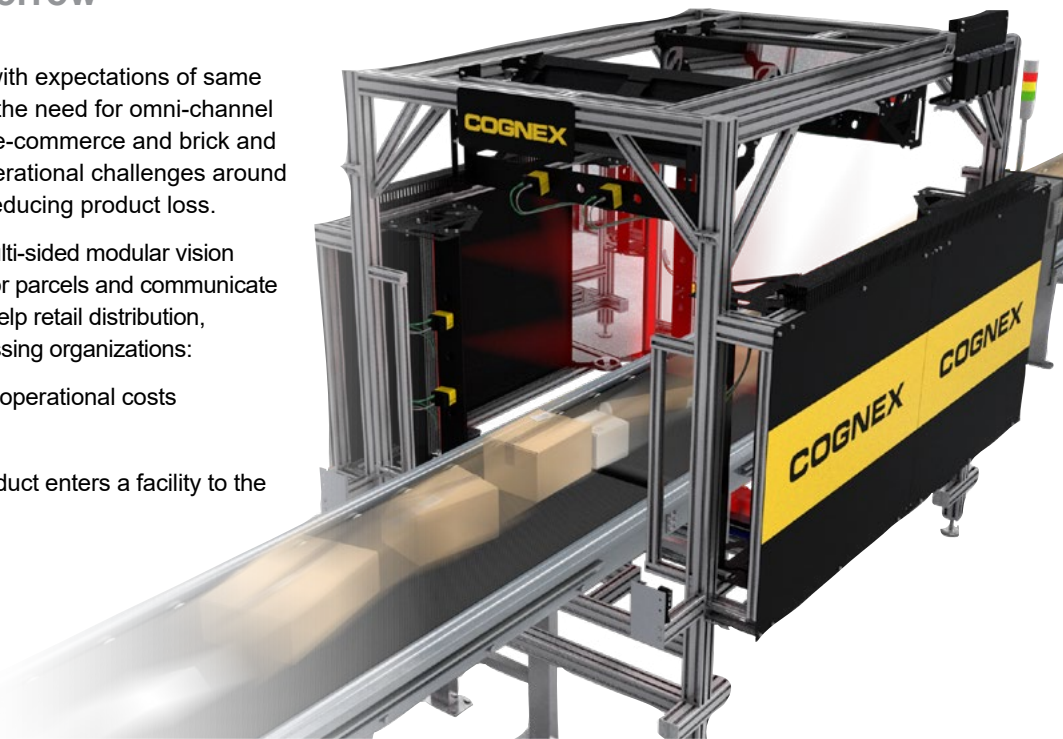
Key features

Advanced 1D and 2D barcode reading algorithms and decoding technology deliver higher read rates and allow you to handle higher throughput with greater confidence.

Multi-sided modular vision tunnels deliver consolidated barcode data to control systems making it easier to improve traceability within your operation.

Cognex Edge Intelligence (EI) software provides visual feedback on no reads, code quality metrics, and trending information on system performance for deeper insights and better process control.

Compact footprint allows for more capacity on your production floor.

Expert installation and service by certified Logistics Partner Integrators (LPIs) or Cognex allows for a quicker installation reducing operation downtime.

Improve throughput and efficiency through industry-leading read rates

Cognex image-based barcode reading systems and modular vision tunnels use advanced algorithms and decoding technology to achieve up to 99.9% read rates and can read codes from steep angles, which reduces required spacing between packages on the line. Higher read rates and smaller gaps between packages reduce manual rework and increase overall throughput.

- **DataMan® image-based barcode readers** have no moving parts that will wear out or fail.
- **Cognex Edge Intelligence (EI)** provides performance feedback, identifies trends, and delivers operational insights for corrective action.
- **Barcode Assignment** prevents multi-reads of codes across small gaps and ensures the right code is assigned to the right package.
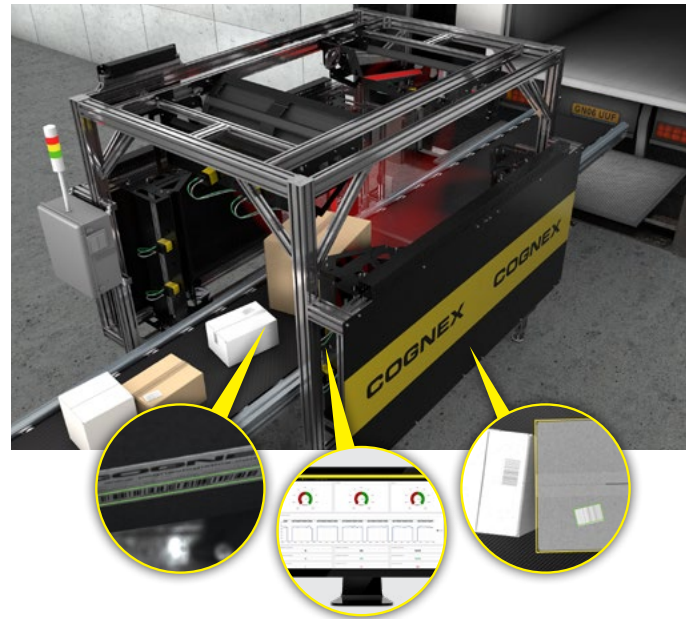
Adapt to changing needs with flexible solutions

Each Cognex modular vision tunnel is built on a lightweight, strong, and adjustable aluminum frame that is optimized to belt height and width and is shipped as individual modules. The readers, modules, and frames are scalable to meet different environmental and business needs over time.

Future improvements in your operations could include:

- Swapping out reader modules to accomodate changes in application specs such as smaller barcode sizes, larger package sizes, or increased line speed
- Converting to 2D code reading
- Upgrading to the latest vision and barcode reading technology
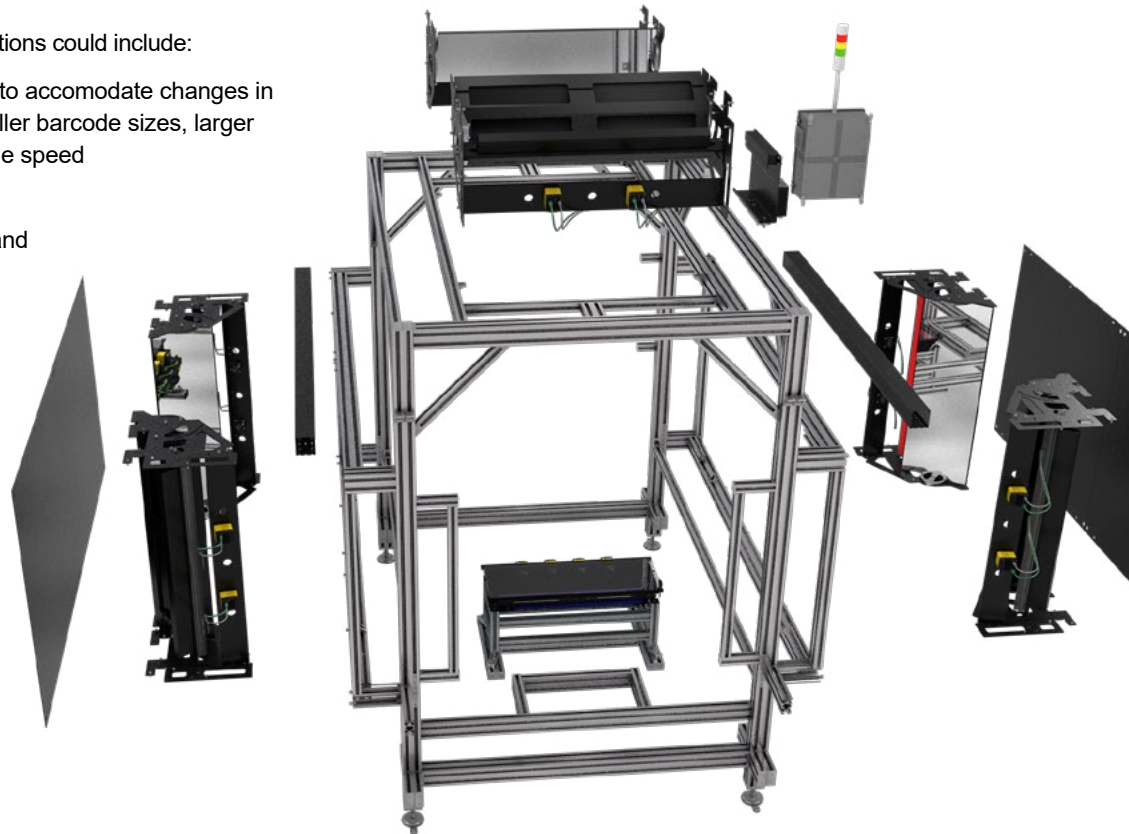
Achieve fast ROI through quick installation and superior service

Designed with modular components, Cognex logistics barcode reading systems and modular vision tunnels are quickly installed in just hours by a local Cognex certified Logistics Partner Integrator (LPI) or Cognex directly. Fast installation means you will more quickly realize the benefits of increased throughput, greater efficiency, and return on investment, even allowing for installations during scheduled downtime windows.

Once you are in operation, work with a trusted partner who delivers service and support when you need it. Cognex's global team of dedicated logistics experts is ready to help accelerate adoption and keep your operations running smoothly through:

- 24x7 phone support
- On-site support options
- Training classes and other educational resources

Reducing rework and decreasing customer retention costs drive higher ROI

If you are a high-volume retail distributor or fulfillment house and are currently getting read rates of 99%, a $150,000 investment in new barcode reading systems to reach 99.9% read rates will pay for itself in less than three months. The cost savings come from:

- Reduction in time and labor required to handle rework (packages lost or delayed due to a no-read on the barcode)
- Less money spent correcting customer issues where the company failed to meet a delivery promise (in the form of extra shipping fees, extensions of a frequent buyer program, or store credit)

Optimize your logistics operations

Use this free, online tool to calculate annual savings, productivity improvement, and return on investment.

Read Rate	Cost of Operators (USD/Year)	Customer Retention Cost for Lost/Late Pkgs (USD/Year)	150K Investment Payback 99%–99.9%
97%	$902,737.50	$1,203,650	
98%	$601,912.50	$802,550	
99%	$300,956.25	$401,275	
99.5%	$150,543.75	$200,725	
99.9%	$30,187.50	$40,250	**2.9 months**

Side-Mounted Barcode Reading Systems

Cognex side-mounted barcode reading systems consist of a frame with a barcode reading module mounted on the side. These side-reading solutions improve throughput by quickly and accurately reading codes, even if the box is not perfectly square to the reader or the codes are worn or damaged. It is easily mounted close to the conveyor or in tight spots using an optical mirror to minimize space. Multi-reader modules are configured as a single unit to streamline the setup process.

Side-mounted DataMan barcode reader module

Simple, clean cable routing tray

Fast and easy installation and commissioning

Performance feedback
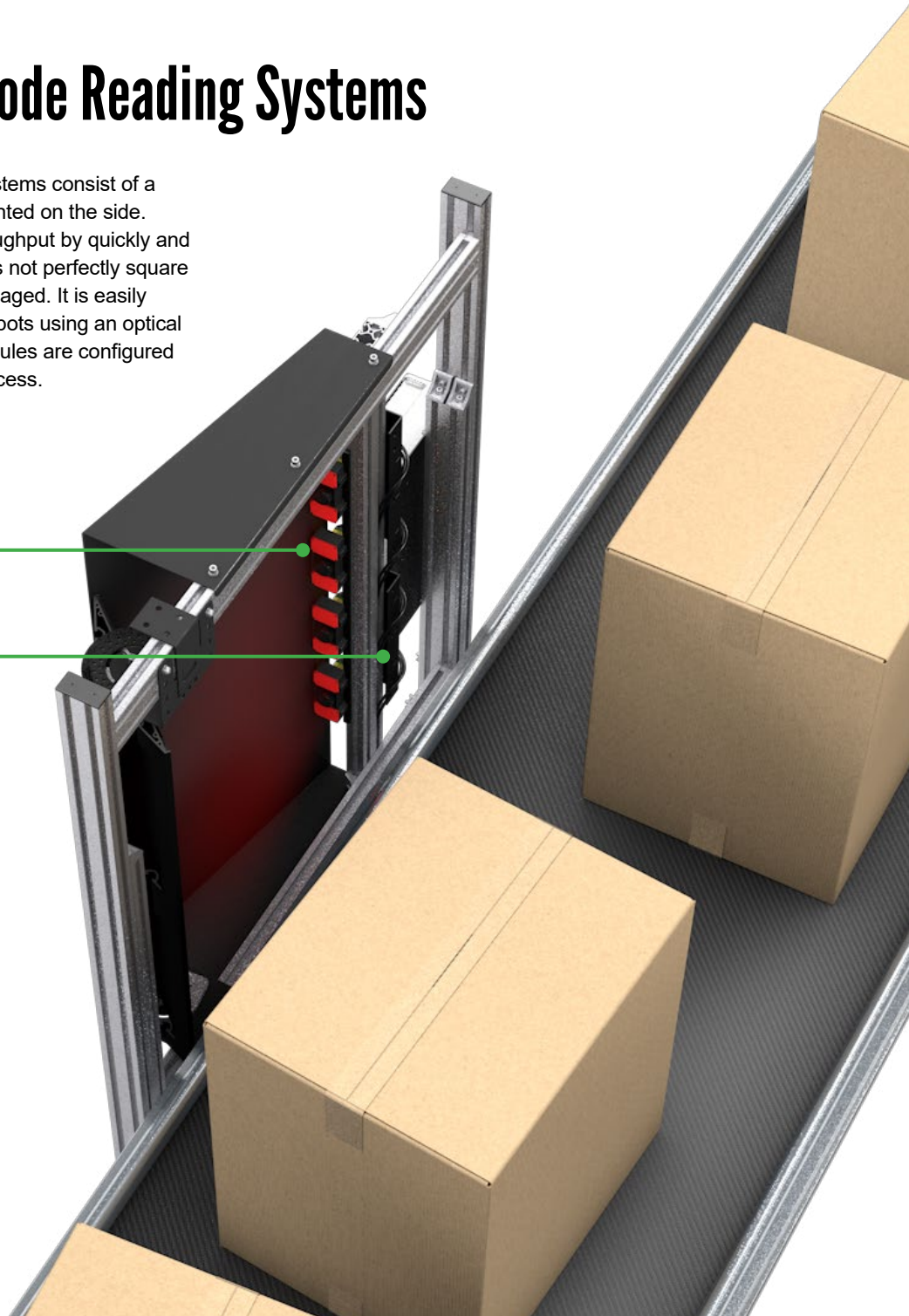
Typical Applications

- Tote sorting
- Pallet reading
- Zone routing

Bottom-Side Barcode Reading Systems

Cognex bottom-side barcode reading systems are mounted under the conveyor and read codes through a small gap in the belt. These lightweight and compact solutions improve traceability and throughput.
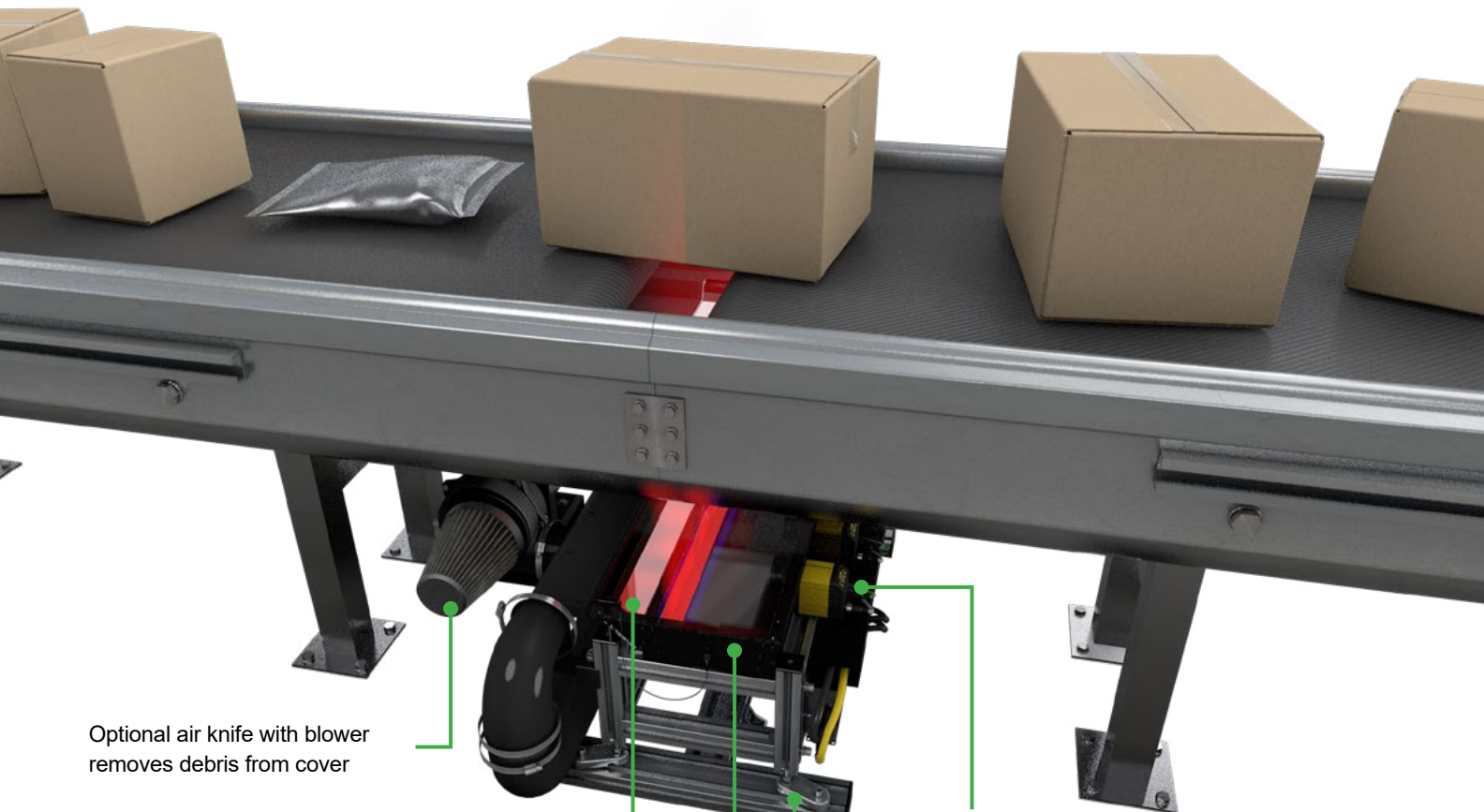
Optional air knife with blower removes debris from cover

Slide-out cover and mirror allow for easy maintenance

Self-contained, rugged industrial housing stands up to demanding environments

DataMan barcode reader module with 4, 5, or 6 readers based on belt width

Sturdy aluminum frame is lightweight and stable under conveyors
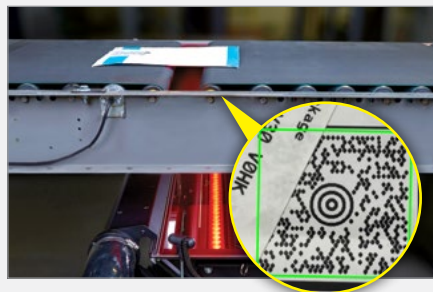
Fast and easy installation and commissioning

Performance feedback

Typical Applications

- Reading barcodes on packages that are always positioned code-side down based on upstream processes
- Induction station followed by a 5-sided modular vision tunnel on a ship sorter
- As part of a 6-sided modular vision tunnel (ship sorter)
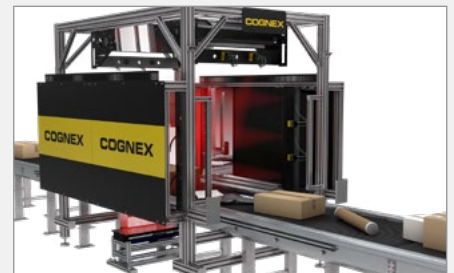
Top-Side Barcode Reading Tunnels

Cognex top-side barcode reading tunnels consist of an aluminum frame with a barcode reading module mounted overhead. Top-side barcode reading tunnels increase traceability over handheld and manual scanning methods.

Simple, clean cable routing tray

Top-mounted DataMan barcode reader module with 1, 2, 3, or 4 readers based on belt width

15-degree wedge for optimal scanning

Fast and easy installation and commissioning

Performance feedback

Typical Applications

- Print and apply (labeling)
- Tray or cross-belt sorters for flats
- Induction lines

114-1387R
LEC-CEEB5E8
COO: CHINA

3-Sided Barcode Reading Tunnels

Cognex 3-sided barcode reading tunnels consist of a frame with three barcode reading modules mounted overhead and on the left and right sides of the belt. This solution delivers improved traceability, higher throughput, and improved read rates. It is designed to reduce the need to manually align packages as well as read multiple codes on multiple sides of an item.

Three barcode reader modules (top, left, and right)

Simple, clean cable routing tray

Pre-defined positions for optimum code reading angles

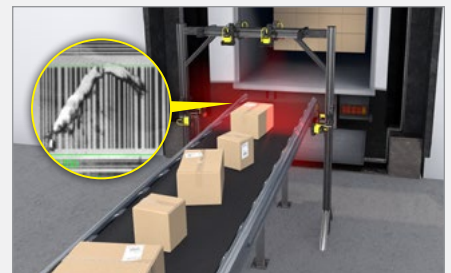Fast and easy installation and commissioning

Multi-reader sync

Performance feedback
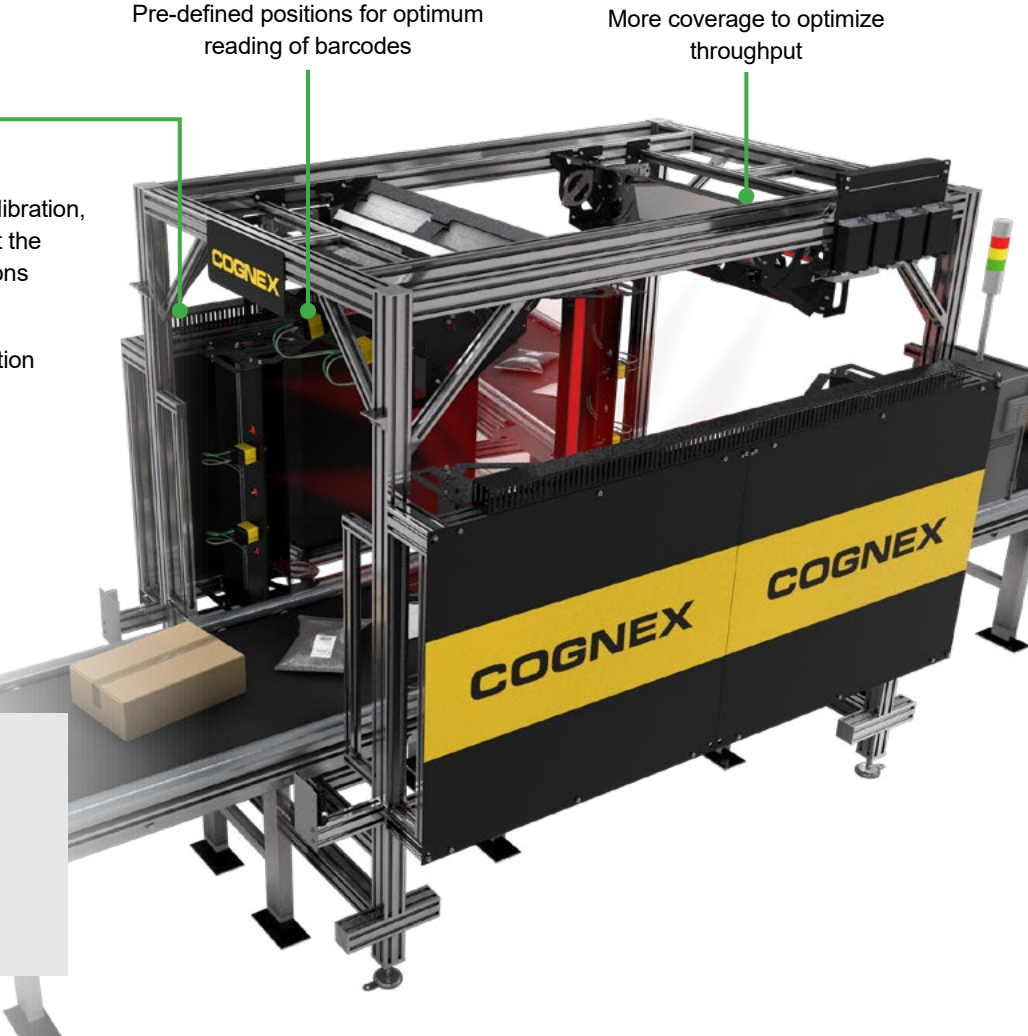
Typical Applications

- Reading barcodes on product with codes on top or side
- Receiving goods at the inbound dock door

5-Sided Modular Vision Tunnels

Cognex 5-sided modular vision tunnels consist of a frame with six barcode reading modules mounted overhead (top, front, and back) and on each side (left and right). This solution delivers high-throughput, no-touch barcode reading for improved traceability, and higher performance than 3-sided scanning tunnels. Cognex 5-sided modular vision tunnels eliminate the need to manually align packages by using advanced image processing technology to read codes from extreme angles and high perspectives. This optimizes read rates and reduces gaps between packages, which improves overall throughput.

Pre-defined positions for optimum reading of barcodes

More coverage to optimize throughput

Quick and easy deployment

Edge Intelligence configuration, calibration, and verification tools to ensure that the system is performing to specifications

Multi-reader sync for tunnel integration and synchronization

Performance feedback with EI provides rich data for analytics and operational insights

Build Your Own Modular Vision Tunnel

Select from different options to create a specialized solution using the modular vision tunnel configurator.
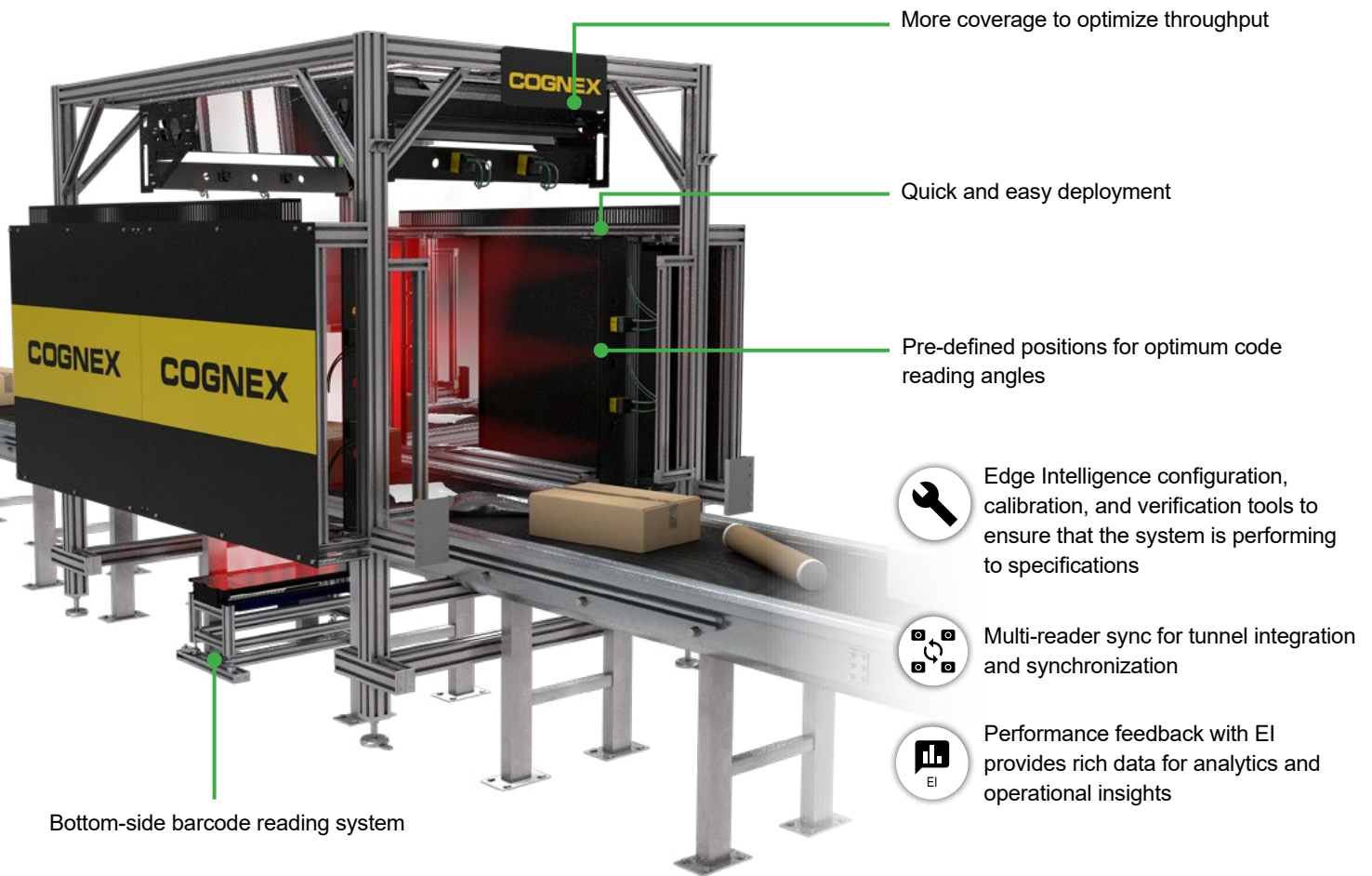
Typical Applications

- High volume inbound receipt of goods
- High volume outbound truck loading
- High speed ship sorters
- Tray sorters
- Cross-belt sorters
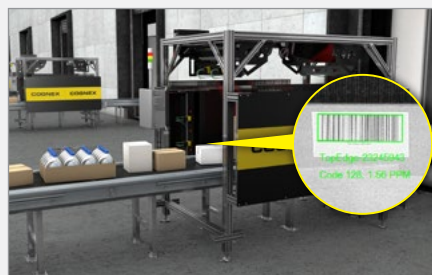
6-Sided Modular Vision Tunnels

Cognex 6-sided modular vision tunnels consist of a frame with seven barcode reading modules mounted overhead (top, front, and back), on each side (left and right), and underneath the conveyor. This solution is designed to maximize throughput, efficiency, and scale with no operator intervention or manual package alignment prior to code reading. Cognex 6-sided modular vision tunnels use advanced image processing technology to read codes from extreme angles and high perspectives to optimize read rates and reduce gaps between packages, which improves overall throughput.

More coverage to optimize throughput

Quick and easy deployment

Pre-defined positions for optimum code reading angles

Edge Intelligence configuration, calibration, and verification tools to ensure that the system is performing to specifications

Multi-reader sync for tunnel integration and synchronization

Performance feedback with EI provides rich data for analytics and operational insights

Bottom-side barcode reading system

Typical Applications

▪ High volume inbound receipt of goods

▪ High volume outbound truck loading

▪ High speed ship sorters with bottom-side barcode reading
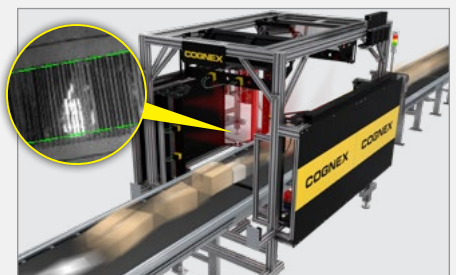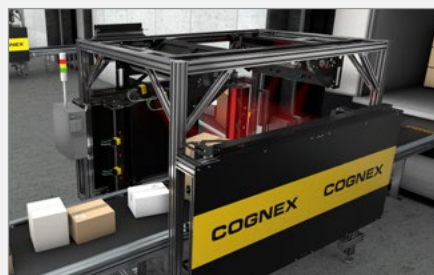
System Components and Technology

Barcode Readers

DataMan 370 Series

Delivers superior read performance for the broadest range of applications, including multi-code, multi-symbology requirements.

DataMan 470 Series

Premium reader with multi-core processing power and advanced imaging technology for complex, high throughput 1D and 2D code applications.

A number of external lighting attachments to fully illuminate your codes are available.

High-Powered Integrated Torch (HPIT)

High-Powered Integrated Light (HPIL)

High-Powered Illumination Accessory (HPIA)

Code Reading Technology

1DMax with Hotbars

1DMax™ with Hotbars® is an algorithm and technology optimized for omnidirectional 1D barcode reading, decoding up to 10X the speed of a conventional barcode reader.

2DMax with PowerGrid

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

Barcode Assignment

This technology reduces multi-read errors and recirculation problems associated with packages and parcels that are very close together on a line, reducing misreads while increasing throughput. Cognex 3D vision tools track boxes through the reading zone and only accept codes that are read on specific surfaces.
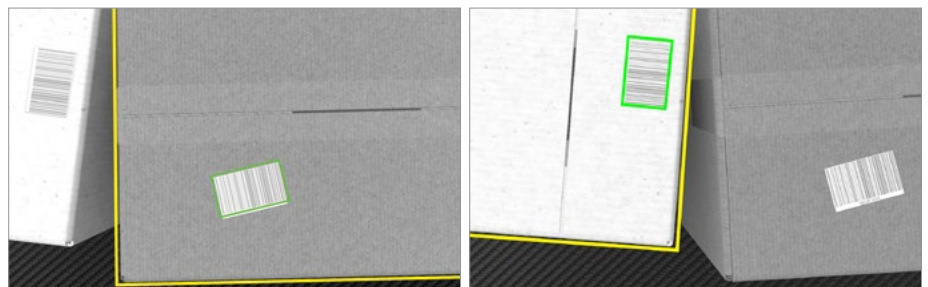
Advanced Image Formation Technology

HDR+ technology is an advanced, patent-pending algorithm that stretches the boundaries of HDR technology by further increasing localized contrast changes automatically. This creates a more uniform image in a single acquisition allowing greater depth-of-field, faster line speeds, improved code handling, and shorter gaps between packages.


No HDR   *HDR+*

Multi-Reader Sync

This option synchronizes multiple logistics barcode readers for extended field-of-view or for multi-side barcode reading. The primary reader collects data from the secondary readers and communicates the overall result to the control system, making it easier to increase reader count and application coverage without a complete system redesign. This allows you to seamlessly scale your operations to meet future needs.
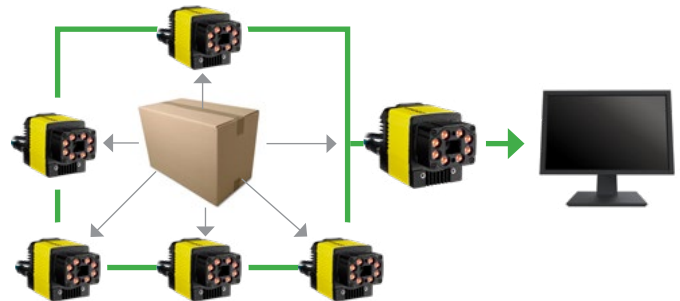
Edge Intelligence (IoT Analytics)

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 performance 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.
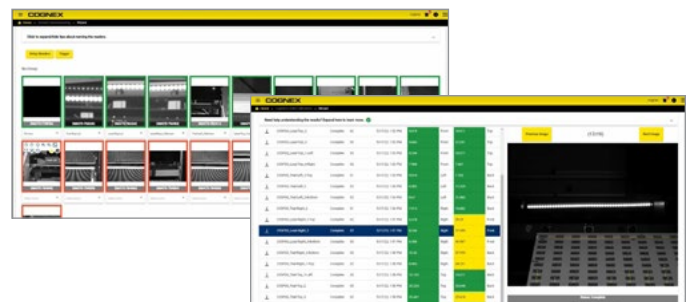
Analytics tools

Performance dashboards and read-rate trends

Setup tools

Tunnel Commissioning, Dynamic Test, and 3D Field Calibration

Let's connect with us