

Modular Vision Tunnels

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



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 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:

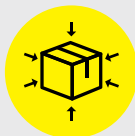
- Maximize facility throughput at lower operational costs
- Scale growth efficiently
- Improve traceability from when a product enters a facility to the point where it leaves the facility



Key benefits



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, multi-symbology barcode reading delivers consolidated barcode data to control systems making it easier to improve traceability within your operation.



Cognex Edge Intelligence Tunnel Manager provides tools to setup, monitor, and optimize Modular Vision Tunnels, including visual feedback on no reads, code quality metrics and trending information.



Compact footprint allows for more capacity on your production floor.

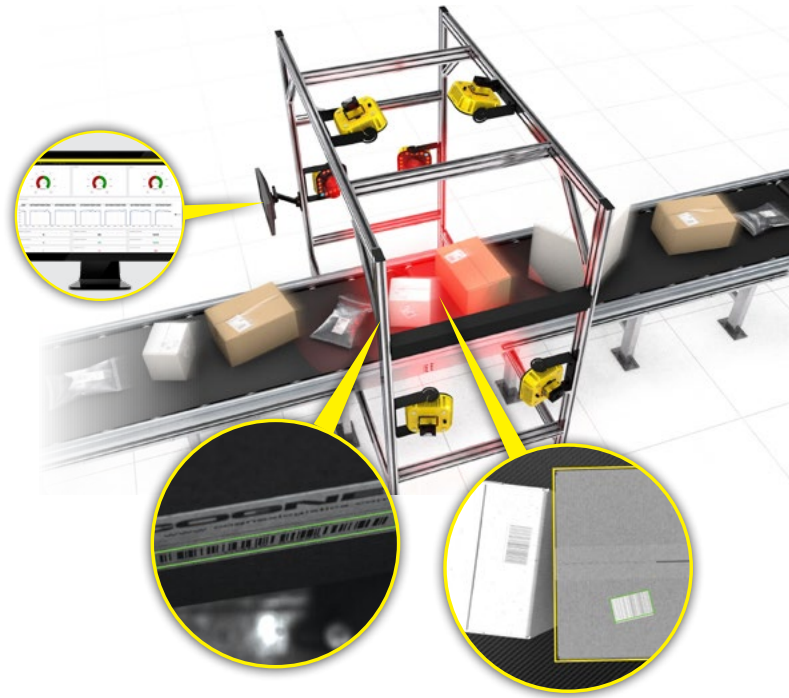


Expert installation and service by certified Logistics Partner Integrators (LPIs) or Cognex allows for a quicker installation reducing operation downtime.

Improve throughput and efficiency through industry-leading read rates

Cognex 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.

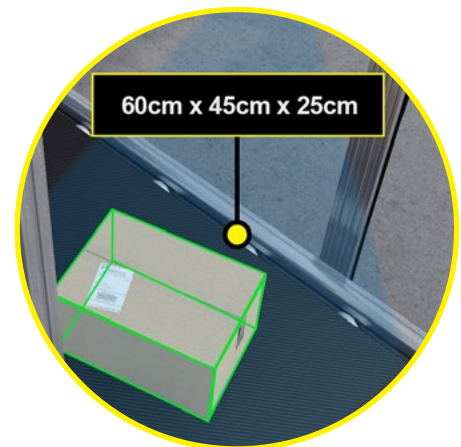
- **DataMan® image-based barcode readers** have no moving parts that will wear out or fail.
- **Cognex Edge Intelligence Tunnel Manager** provides performance feedback, identifies trends, and delivers operational insights for corrective action.
- **Barcode Assignment** prevents multi-reads of codes across 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. The readers, modules, and frames are scalable to meet different environmental and business needs over time.

Modular Vision Tunnels can be upgraded with a dimensioning system to measure accurate dimensions or detect damage on packages. Tunnels are also compatible with major brand scales to consolidate weight information alongside the barcode and dimensions for DWS applications or vendor compliance.



Achieve fast ROI through quick installation and superior service

Designed with modular components, Cognex 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:

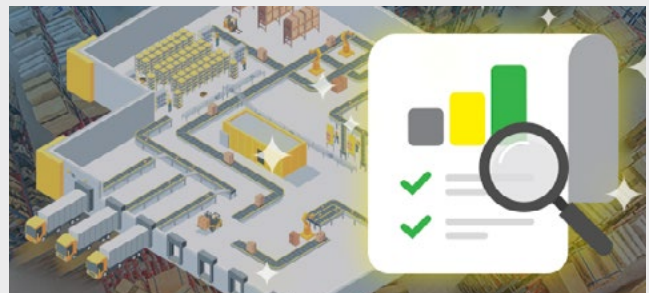
- 24x7 phone support
- On-site support options
- Training classes and other educational resources



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 Modular Vision Tunnels 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)



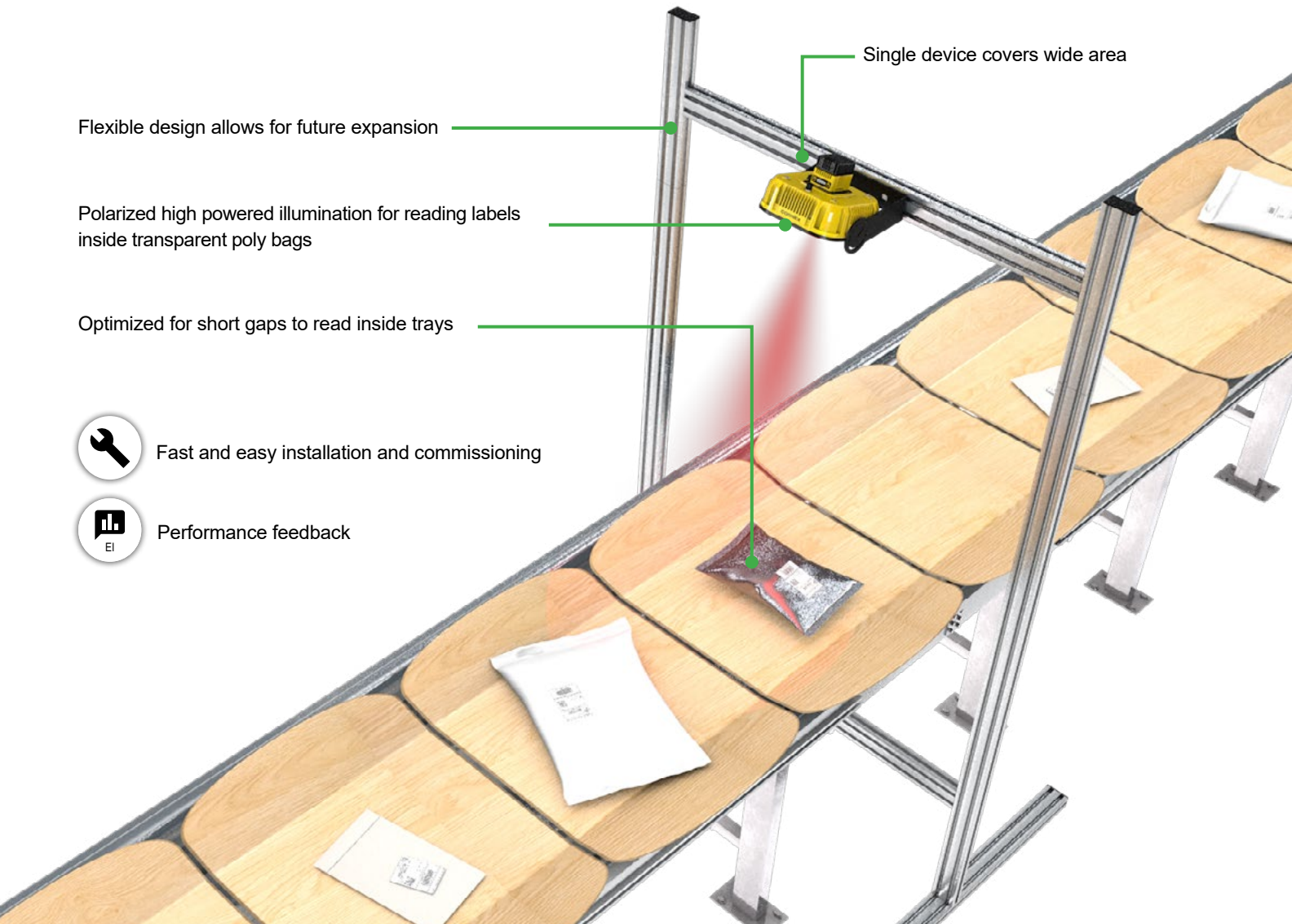
Optimize your logistics operations

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

Top-Side Barcode Reading Tunnels

Cognex top-side Modular Vision Tunnels are ideal for applications on sorters, or other applications where only the top-side needs to be read. A single high-resolution device covers most applications and typical sorters. Due to the modular design, these systems can easily expand to a multi-sided solution after deployment.



Single device covers wide area

Flexible design allows for future expansion

Polarized high powered illumination for reading labels inside transparent poly bags

Optimized for short gaps to read inside trays



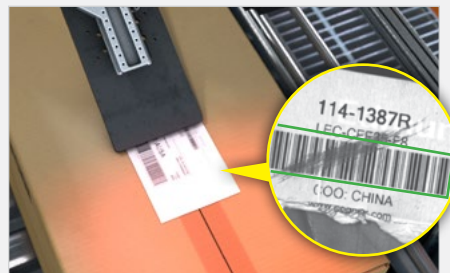
Fast and easy installation and commissioning



Performance feedback

Typical Applications

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



3-Sided Barcode Reading Tunnels

Cognex 3-sided Modular Vision Tunnels consist of a frame with three barcode reading modules 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. If more than one side of a box needs to be read, Modular Vision Tunnels can be expanded with additional readers to cover multiple sides.

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

Pre-defined positions for optimum code reading angles



Fast and easy installation and commissioning



Multi-reader sync

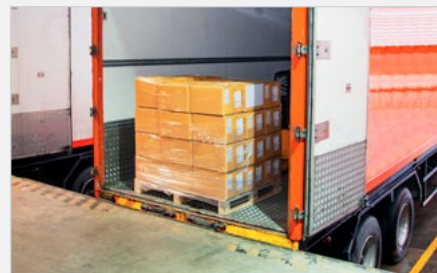


Performance feedback



Typical Applications

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



5 and 6-Sided Modular Vision Tunnels

Cognex 5- and 6-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). 6-sided tunnels include the Bottom-Side Barcode Reading system underneath. This solution delivers high throughput, no-touch barcode reading for improved traceability and higher performance than 3-sided scanning tunnels. These 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.



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

Quick and easy deployment

Pre-defined positions for optimum code reading angles

Bottom-side barcode reading system

Typical Applications

- High volume inbound receipt of goods
- High volume outbound truck loading
- High speed ship sorters
- Tray sorters
- Cross-belt sorters



System Components and Technology

Barcode Readers

DataMan 380 Series

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

DataMan 580

Exceptional throughput and read rates: simultaneously decode multiple codes, labels, and packages in real-time while maintaining high line speeds, even with short gaps between packages.



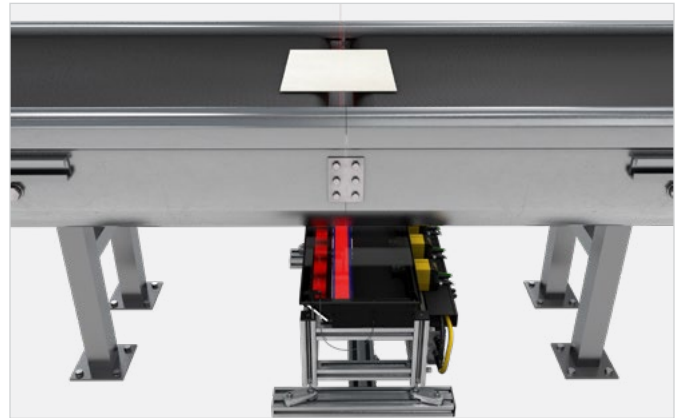
Lighting

High-Powered Integrated Torch (HPIT) maximizes scanning coverage and minimizes exposure times for greater throughput. Red and white lighting options illuminate codes in various lighting conditions.



Bottom-Side Barcode Reading Systems

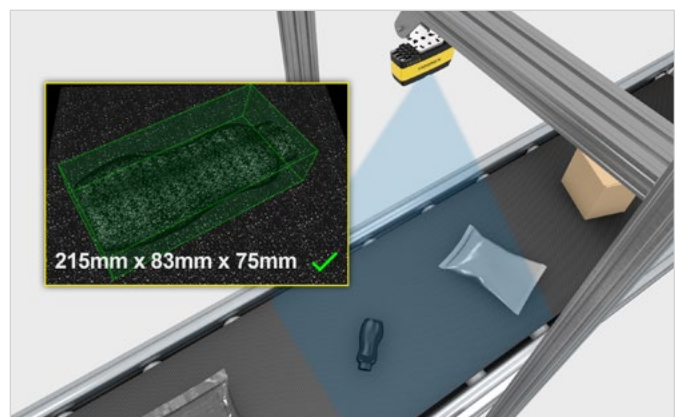
Cognex bottom-side systems are mounted under the conveyor and read codes through a small gap in the belt. These lightweight and compact solutions improve traceability and throughput.



Vision Systems

3D-A1000 Dimensioning System

The 3D-A1000 dimensioning system is a compact and industrial smart camera that can be incorporated into Modular Vision Tunnels. This system can capture moving objects in both 3D and 2D and track multiple packages through the full field-of-view.



Code Reading Technology

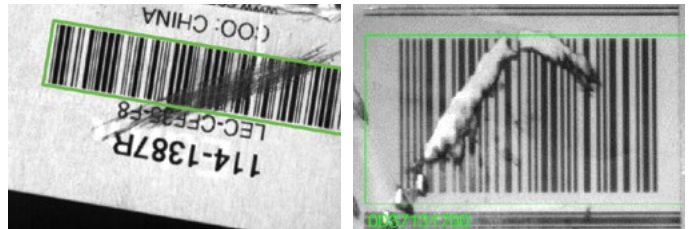
1D/2D QuickSort

1D/2D QuickSort™ is a proprietary algorithm that leverages artificial intelligence to decode multi-symbology labels up to three times faster than conventional methods. The technology enables DataMan 380 and 580 readers to simultaneously read multiple codes, labels, and packages even when there are short package gaps on the line.



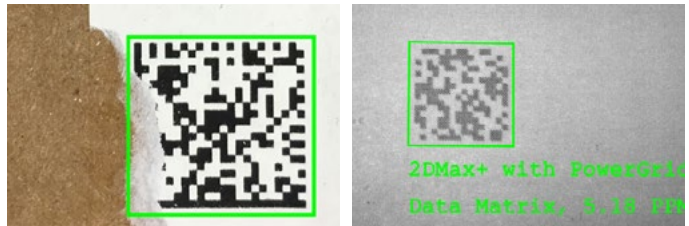
1DMax with Hotbars

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.



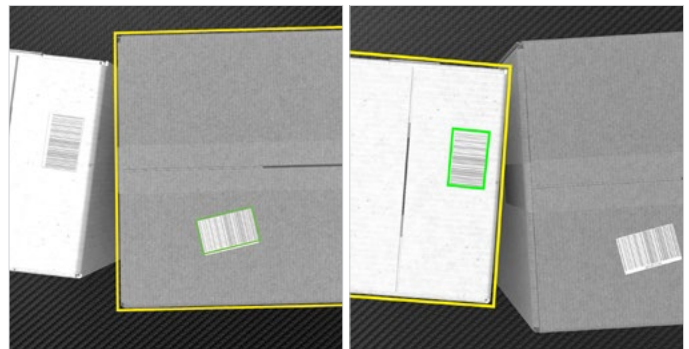
2DMax with PowerGrid

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.



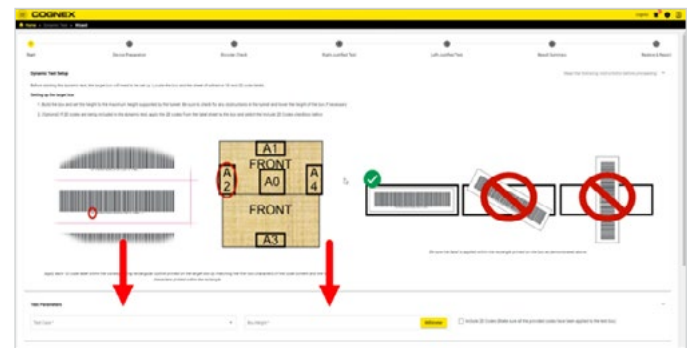
Edge Intelligence Tunnel Manager

Cognex Edge Intelligence Tunnel Manager provides tools to setup, monitor, and optimize Modular Vision Tunnels, including:



Tunnel Analytics

Collect, aggregate, and analyze data from multiple devices simultaneously for insights into tunnel performance, vendor compliance, and more to aid operational efficiency and revenue recovery initiatives.



Setup and Commissioning

Repeatable, reliable tunnel installation with the ability to validate performance before deployment.

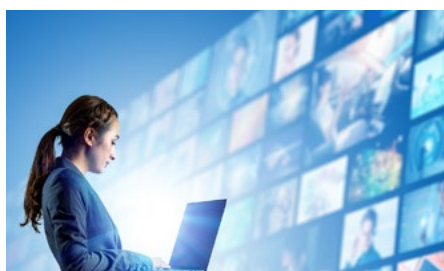
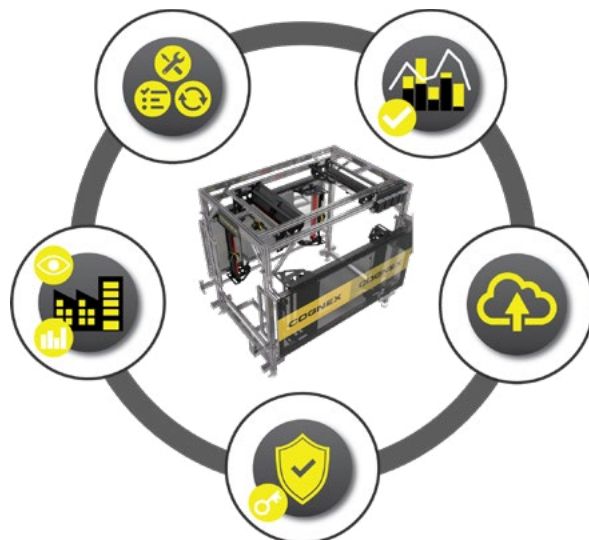
Data Forwarding

Connect data over secure MQTT to Microsoft Azure, Amazon Web Services, and SCADA systems such as Ignition to enhance your operation.

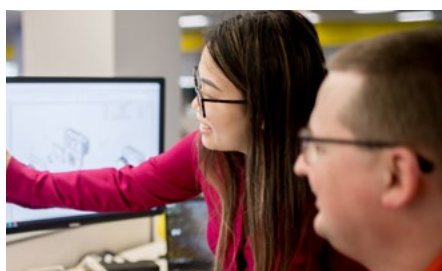
Customer Success Plans for Modular Vision Tunnels with Edge Intelligence

Customer Success Plans combine actionable data and flexible support options to ensure maximum performance and time to value with Cognex products and solutions.

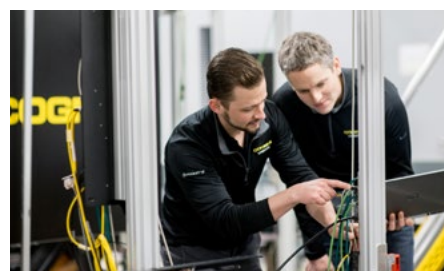
All plans leverage Edge Intelligence, a software platform that offers robust analytics and delivers deeper insights into operations to inform data-driven business decisions.



Self-Guided, Always-On



Collaborate as needed



Leverage an expert partnership

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

North America +1 844 999 2469
Brazil +55 11 4210 3919
Mexico +800 733 4116

Europe

Austria +43 800 28 16 32
Belgium +32 289 370 75
Czechia +420 800 023 519
France +33 1 76 54 93 18
Germany +49 721 958 8052
Hungary +36 800 80291

Ireland +353 21 421 7500
Italy +39 02 3057 8196
Netherlands +31 207 941 398
Poland +48 717 121 086
Romania +40 741 041 272
Spain +34 93 299 28 14
Sweden +46 21 14 55 88
Switzerland +41 445 788 877
Turkey +90 216 900 1696
United Kingdom +44 121 29 65 163

Asia-Pacific

Australia +61 2 7202 6910
China +86 21 5875 1133

India +91 7305 040397
Indonesia +62 21 3076 1792
Japan +81 3 5977 5400
Korea +82 2 539 9047
Malaysia +6019 916 5532
New Zealand +64 9 802 0555
Philippines +63 2 8539 3990
Singapore +65 3158 3322
Taiwan +886 02 7703 2848
Thailand +66 6 3230 9998
Vietnam +84 98 2405167

© Copyright 2023, Cognex Corporation. All information in this document is subject to change without notice. All Rights Reserved. Cognex, DataMan, Hotbars, 2DMax, and PowerGrid are registered trademarks of Cognex Corporation. 1DMax is a trademark of Cognex Corporation. All other trademarks are property of their respective owners. Lit. No. LGTNNLDS-EN-09-2023

www.cognex.com