

**COGNEX**

Advanced machine vision made easy

# Zone Routing and Tote Inspection for High-Throughput Logistics

Easy-to-deploy, purpose-built device with  
advanced barcode reading and AI detection

**SLX-280D**



# Purpose-built, easy-to-deploy device for zone routing systems



Optimize efficiency and reduce total cost of ownership with high-performance barcode reading and AI-powered item detection

## SLX-280D

Designed to enhance the efficiency of zone routing, the compact SLX-280D mounts quickly and easily in small clearance areas. It delivers fast, omnidirectional decoding to capture any code at any angle, along with easy-to-use AI-powered detection and classification tools to minimize process errors. Daisy-chaining multiple devices together using dual Ethernet connectivity simplifies installation and reduces total cost of ownership (TCO). Streamline large scale deployment and maintenance at scale with the on-device management console. With intuitive setup and reliable performance, the SLX-280D streamlines workflows, reduces manual labor, and boosts throughput, improving overall equipment effectiveness (OEE).

### Purpose-built

The SLX-280D meets logistics market needs with flexible, mirror-less mounting, daisy-chain connectivity for streamlined installation, and omni-directional code reading with a wide field-of-view for efficient scanning.

### Easy to set up

Non-technical personnel can deploy the SLX-280D within minutes. Simply unbox the unit, follow the guided setup in the web-based UI, and you're ready to go, minimizing initial downtime and increasing line efficiency.

### Scalable deployment

The SLX-280D is easily scaled as part of a zone routing solution. Connect devices in a daisy chain and control them centrally, pushing updates instantly across your network using embedded multi-device management.

## Robust performance handles process variability, such as:

Barcode label quality, position, and orientation

Hygiene issues

Tote color and orientation

Package types

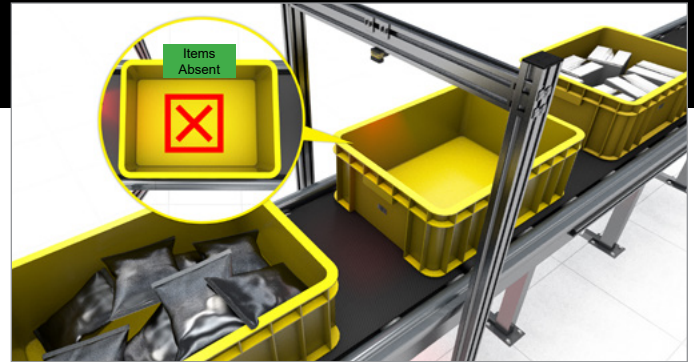


# Application examples



## Code reading for zone routing

Optimize zone routing efficiency by consistently decoding barcodes and routing each tote to its designated zone.



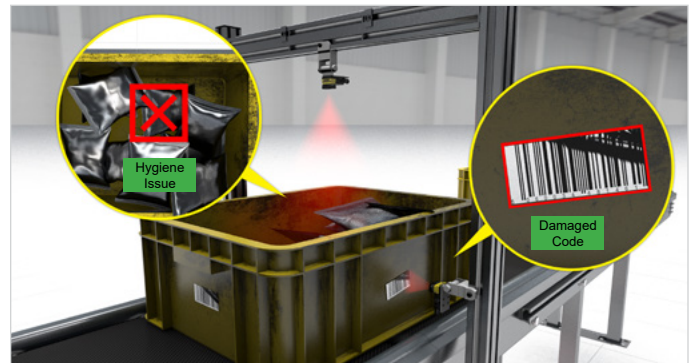
## Tote inspection

Increase order accuracy and process quality by detecting the presence or absence of items in totes.



## Tote classification and code reading

Successfully route totes to their proper zones even if labels are worn or missing by detecting the type or color of the tote in tandem with barcode reading.



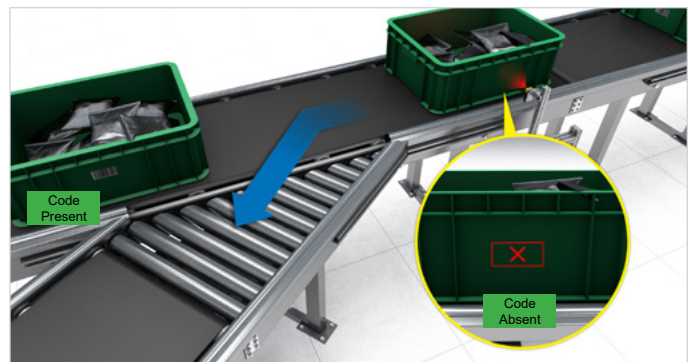
## Tote hygiene check and code reading

Increase system uptime by reducing misreads, false detections, and equipment jams by inspecting and flagging totes for debris, label clutter, or smudges before scanning barcodes.



## Barcode damage diagnostics and code reading

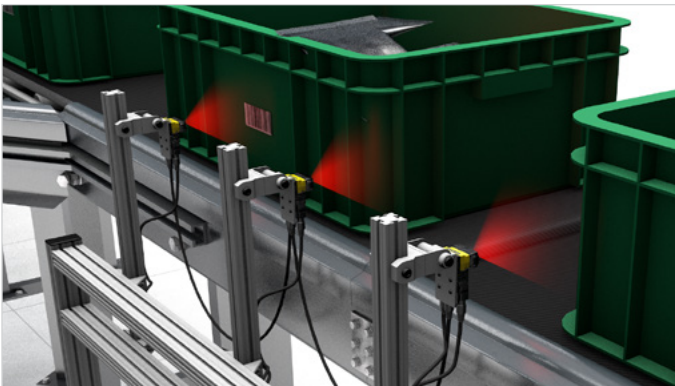
Diagnose the root causes of no-reads on barcode labels by classifying barcode defects, such as wrinkles, tears, and obstructions, and proactively route totes for label rework.



## Label presence/absence and code reading

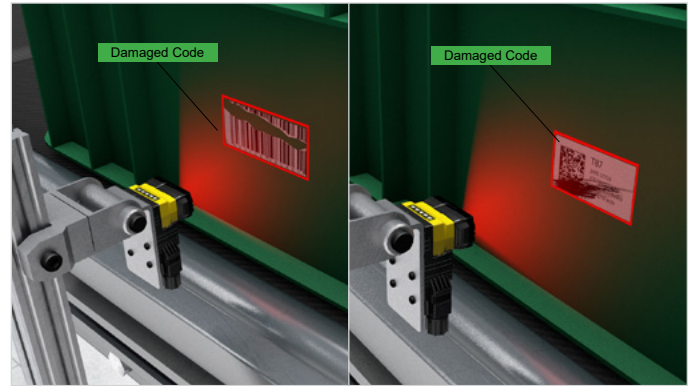
Verify labels are present and readable on totes or packages to prevent downstream operational issues, then read the code.

# Key benefits



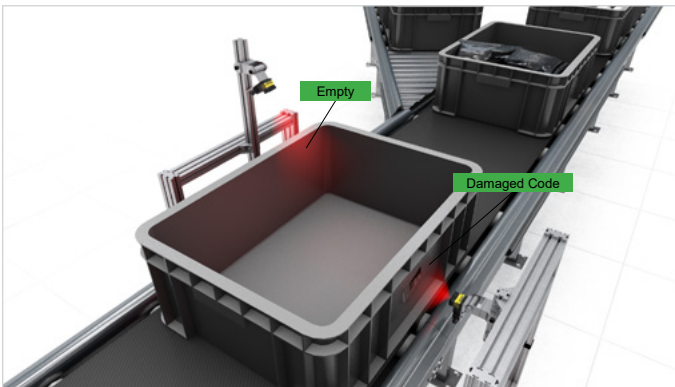
## Lower TCO using daisy-chaining

SLX-280D offers dual Ethernet connectivity, enabling daisy-chaining of units, which significantly reduces wiring, connector, and installation costs.



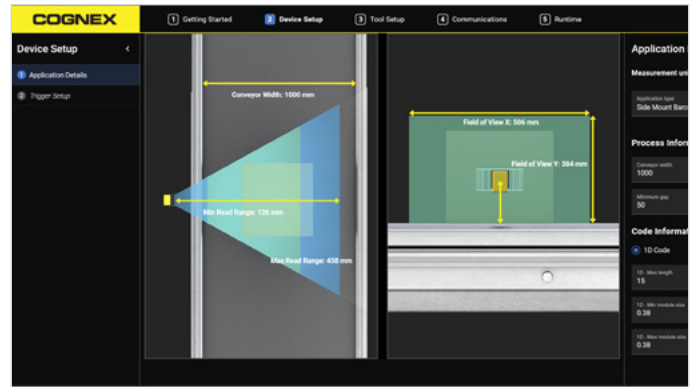
## Robust, consistent performance

SLX-280D delivers up to 99.9% read rates by combining advanced decoding, flexible mounting, superior image formation, and a wide field of view for reliable reading of difficult 1D and 2D codes.



## Elevate zone routing accuracy and efficiency with AI-powered vision

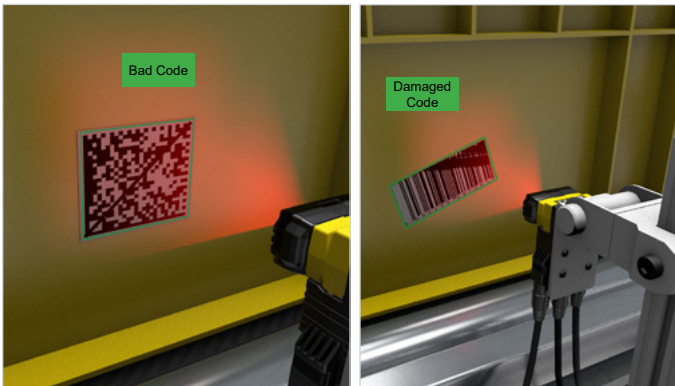
SLX-280D improves process efficiency with user-friendly, AI-powered tools that detect empty totes, read damaged codes, and confirm diverted containers.



## Reduce training costs and deployment time with a common UI

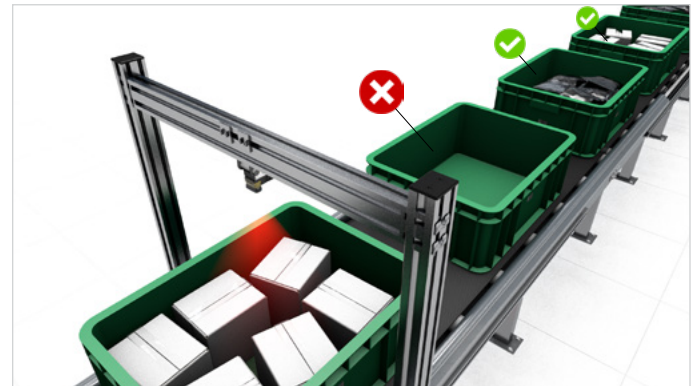
The SLX portfolio features a common software user interface, reducing operator training time and enabling smoother operations and faster deployment at scale.

# Key features



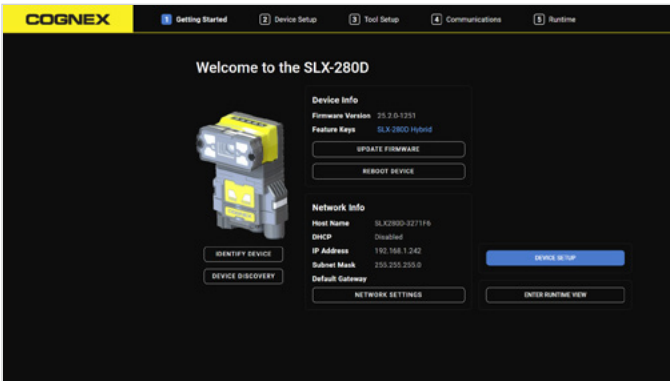
## Advanced code reading technology

Achieve increased tote scanning efficiency and reliable read performance using industry-leading decoding algorithms.



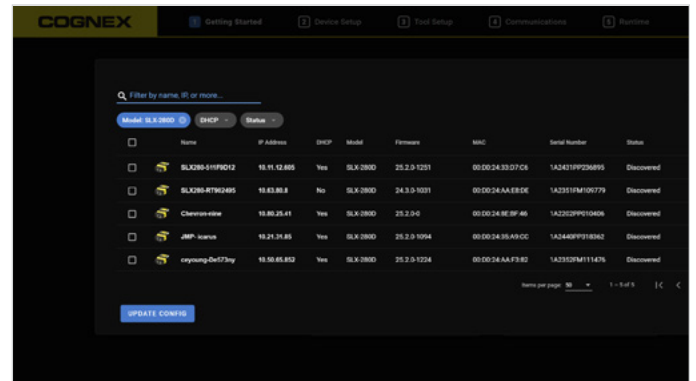
## AI-powered performance

Improve process quality with the built-in AI-powered classification tool.



## Web-based UI with guided setup











“Minimize line downtime with quick installation that requires no expertise and no software downloads.













## Embedded multi-device management

Connect, configure, and maintain multiple SLX devices from an existing SLX-280D via the network.

# Feature Comparison: SLX-280D vs. Conventional Solutions

Common Application Characteristics		
	Conventional Solutions	SLX-280D
<b>Setup and deployment</b>	 Setup requires external PC or software download	 Web-based UI eliminates the need for a PC and software downloads
<b>Scalability</b>	 Often requires a separate server on the network to perform updates	 Replicate configurations or push firmware updates over the network
<b>Mounting flexibility</b>	 Requires buying additional accessories (mirrors) or lensing to meet logistics specifications	 Designed to provide full belt coverage with no modification. Small form factor ideal for short egress spaces and doesn't require mirrors
<b>Process adaptability</b>	 Laser and rectangular sensors can't adapt to 2D codes or perform vision tasks	 High-performance 1D and 2D decoding, and built-in AI-powered vision tools perform presence/absence and classification tasks
<b>System intelligence</b>	 Limited output data	 Rich, customizable output data

Barcode Reading for Zone Routing		
	1D barcode reader	SLX-280D
<b>Code reading</b>	 Only reads 1D codes in a horizontal <u>or</u> vertical format; cannot tolerate moderate code rotation or read 2D codes	 Omnidirectional code reading: Accurately decode 1D and 2D barcodes at any angle
<b>Belt coverage</b>	 Short depth-of-field (DoF) and narrow field-of-view (FoV) limits belt coverage	 Larger depth-of-field (DoF) and wider field-of-view (FoV) support a variety of belt widths

Item Detection and Classification		
	2D rule-based vision sensor	SLX-280D
<b>Vision tool training</b>	 Requires vision expert	 Pre-trained AI allows anyone to set up applications in <15 min
<b>Object variation</b>	 Complicated logic required to handle variation	 Handles a wide range of variation without skilled intervention
<b>Background and hygiene variation</b>	 Requires clean, consistent backgrounds	 Detects against any background

# Elevate zone routing efficiency and tote inspection quality

**Built-in, wide-angle, high-powered LED lighting** improves contrast, for higher performance and accuracy

**USB-C connection** enables instant, seamless connection to devices for fast setup

**Powered by 24V**



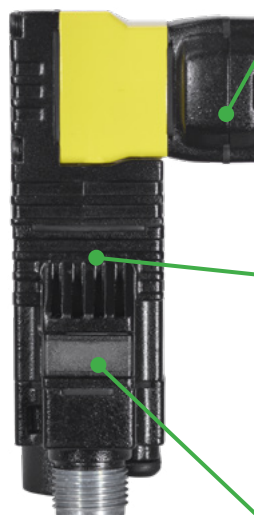
**1.6MP sensor** creates clear images, increasing accuracy and performance

**Purpose-built lens and lighting** support a wider working range for greater belt coverage

**Multi-core processor** enables fast image processing

**Compact form factor** simplifies installation in confined spaces

**Indicator lights** provide operator feedback



**2X 100 Mbps Ethernet** enables fast communication speeds and daisy-chaining devices together

## Drive increased Operational Equipment Efficiency

The SLX-280D streamlines workflows, reduces manual labor, and boosts throughput, improving OEE.



Reduce TCO by leveraging dual Ethernet connectivity to daisy-chain multiple SLX-280D units together, minimizing the cost of Ethernet drops.



Enhance order accuracy, boost process efficiency, and optimize workflows with automated quality checks.



Reduce manual labor with automated tote inspections that deliver consistent, reliable results across zone routing systems 24/7.

# Deploy applications in minutes with a web-based UI and guided workflow

**1** Find the device and open the home screen.

**2** Configure application details and trigger set up.

**3** Select and train tool(s) to be used.

**4** Configure communications protocols.

**5** Enter runtime monitoring view.

Trigger ID	Classification	Result	Read String	Symbology	Decode Time	Timestamp
2400	Returns	Good	Returns:0.69;2400.00;23:43:39.6511	Code128	12 ms	2025-08-04 23:43:39 UTC
2399	Returns	Good	Returns:0.69;2399.00;23:43:39.5391	Code128	13 ms	2025-08-04 23:43:39 UTC
2398	Returns	Good	Returns:0.69;2398.00;23:43:39.2951	Code128	12 ms	2025-08-04 23:43:39 UTC
2397	Returns	Good	Returns:0.69;2397.00;23:43:39.0881	Code128	13 ms	2025-08-04 23:43:39 UTC
2396	Returns	Good	Returns:0.70;2396.00;23:43:38.8501	Code128	13 ms	2025-08-04 23:43:38 UTC

## Common UI across all SLX products

The SLX portfolio features a common software user interface, reducing operator training time and enabling smoother operations and faster deployment at scale.



## SLX-280D Specifications










	SLX-280D (Core)	SLX-280D (Hybrid)
<b>Functionality &amp; Tool Sets</b>		
Tool Set	Barcode decoding, EL Classify	Barcode decoding, EL Classify
Tool Use	Single tool	Single tool or combined tools
<b>Imaging &amp; Performance</b>		
Sensor Type	1/3-inch CMOS, global shutter, monochrome	
Sensor Properties	Diagonal size: 6.21 mm, Pixel size: 3.45 µm (H)	
Image Resolution	1440 x 1080 (1.6 MP)	
Lens Options	4.5 mm f6	
Acquisition Speed/Frames per Second	Up to 45Hz	
Lighting	Wide-angle integrated light, red	
<b>Connectivity &amp; Communications</b>		
Inputs	2 opto-isolated, 2 configurable	
Outputs	2 opto-isolated, 2 configurable	
Status Outputs	5 status LEDs, audible beeper, 2 visual indicator lights	
Networking Communications	Ethernet, USB-C	
Communication Protocols	Ethernet/IP™, PROFINET®, TCP, FTP	
<b>Power &amp; Electrical</b>		
Power Requirements	24 VDC ± 10%, 4.75–5.25V (with off-the-shelf USB-C cable)	
Power Consumption	≤ 7.5 W	
<b>Physical &amp; Environmental</b>		
Dimensions	54.4 x 78.3 x 38.7	
Weight	175 g	
Operating Temperature	0–40 °C (32–104 °F)	
Storage Temperature	-10–60 °C (14–140 °F)	
Operating and Storage Humidity	< 95% non-condensing	
Protection	IP67	
Materials	Die-cast and extruded aluminum and zinc housing	
Mounting	Two M3 threaded mounting holes. Pattern: 37 mm (1.46 in) is compatible with the existing mounting brackets for the DM280 / IS2800	
<b>Compliance</b>		
Certifications	BIS, CE, Eye-Safety, KC, TÜV SÜD NRTL	

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EtherNet/IP is a trademark of ODVA, Inc.

## Components and accessories

Power, I/O, and Connectivity		
	Product ID	Description
	CPS-8A-78-L	Emparro Power Supply 8A 7/8" - L
	CIO-MB-PNP	Master Breakout Board PNP
	CIO-PD-4	Power Distribution Board (PDB)
	CIO-HS-4	Hybrid Switch (HS)
	CIO-PB-4	Power Breakout (PB)
	CCB-CIO-P4141-XXX	Power chain L-coded
	CCB-CPS-A3E11-XXX	Emparro Input 7/8" to C14 Cable
	CCB-CPS-344533-XXX	Two Channel Emparro Output L-Coded Cable
	CCB-CIO-40021-XXX	External/Light Cable
	CCB-CIO-53001-XXX	Primary Cable 12pin

Power, I/O, and Connectivity		
	Product ID	Description
	CCB-CIO-40507-XXX	Shielded Secondary Cable 4pin
	DMA-PS-110VAC-24DC	Laptop Power Supply, 110V AC to 24V
	CCB-CIO-42751-000	Murr, M12 Cable T-Splitter
	CCB-CIO-FLEX-IN-3	Input W cable, Single Device, 3m
	CCB-CIO-51001-XXX	Ethernet chain X-coded
	DMA-STCBLE-IP65-XXX	USB-C to USB-A Ang Cable
	CCB-84901-2001-XXX	X-Coded Ethernet Cable
Mounting Brackets		
	Product ID	Description
	DM100-PIVOTM-01	Bracket, Pivot, Dataman
	DMA-BKT-LGS	Bracket, for Zone Routing Side Mount

# Field of view diagram

## 1.6 MP with 4.5mm F6 lens

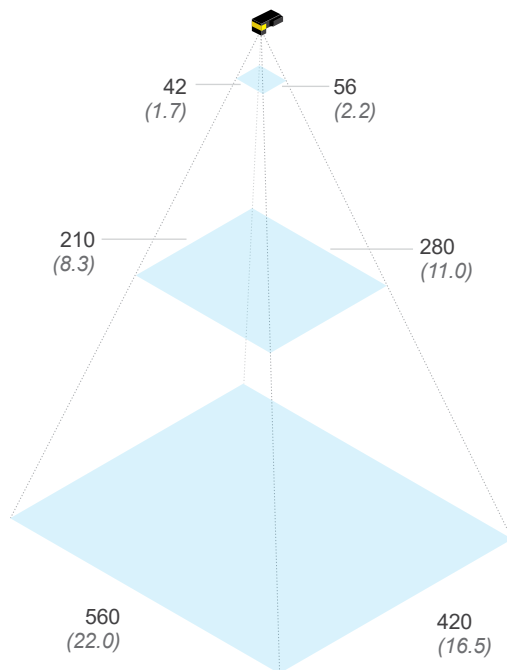
Common working distances

Units: mm (*in*)

50 (2.0)

250 (9.8)

500 (19.7)

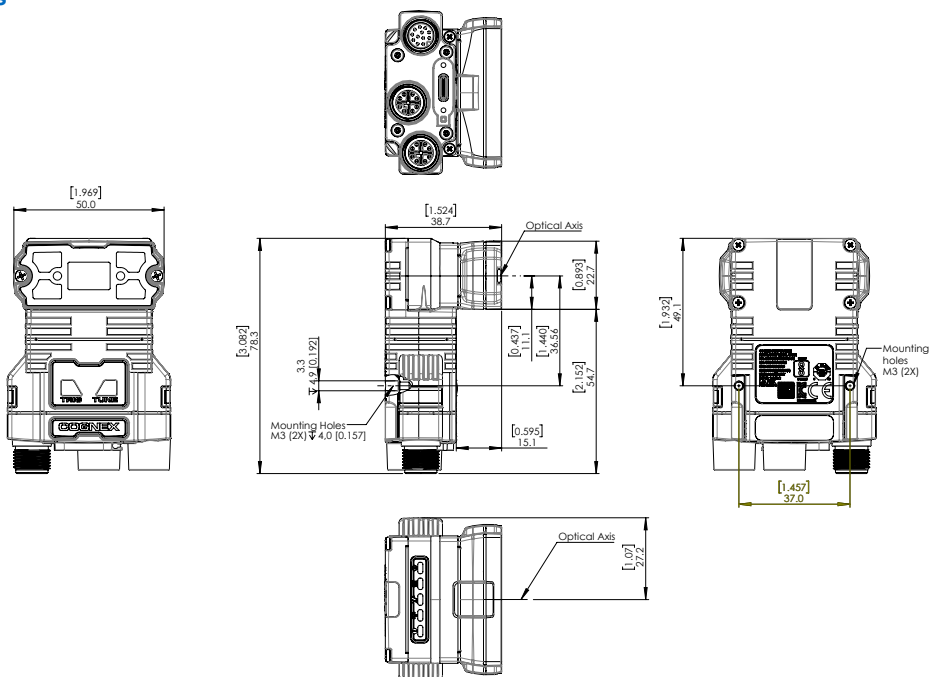


Note: For working distances greater than 1000mm, an external light may be required.

# Dimensions

## SLX-280D with Wide-Angle Integrated Light and 4.5mm Lens

[Download CAD files](#)



# Customer Success

Industry-leading support that works the way *you* want, from self-service resources to a global network of experts



Plan & Deploy



Run & Support



Expand & Optimize

## From initial planning to full-scale implementation, Cognex makes using advanced machine vision easy.

During **planning and deployment**, you'll get curated guidance on product choices and setup, single-click registration, and image-based AI training to get going quickly.

Once you're **validated and in production**, we keep you at peak performance with connected support and self-service training to take you from beginner to expert.

And **over time**, we help you scale up through a broad portfolio of products with shared interfaces and capabilities, as well as easy access to data that helps you grow and optimize across multiple facilities.



[cognex.com/customer-success](https://cognex.com/customer-success)



# Solutions Experience Logistics Portfolio

The Cognex Solutions Experience (SLX) Logistics portfolio addresses the unique needs of the logistics industry, is easy to deploy, and offers robust barcode reading and AI-powered performance that enhances productivity, reduces errors, and optimizes processes for greater efficiency.

**High-resolution side-by-side detection and large-format top-side barcode reading**

SLX-3816

**High-performance item detection and classification**

SLX-290

**Barcode reading for zone routing systems and tote inspection**

SLX-280D

## COGNEX

Advanced machine vision made easy

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