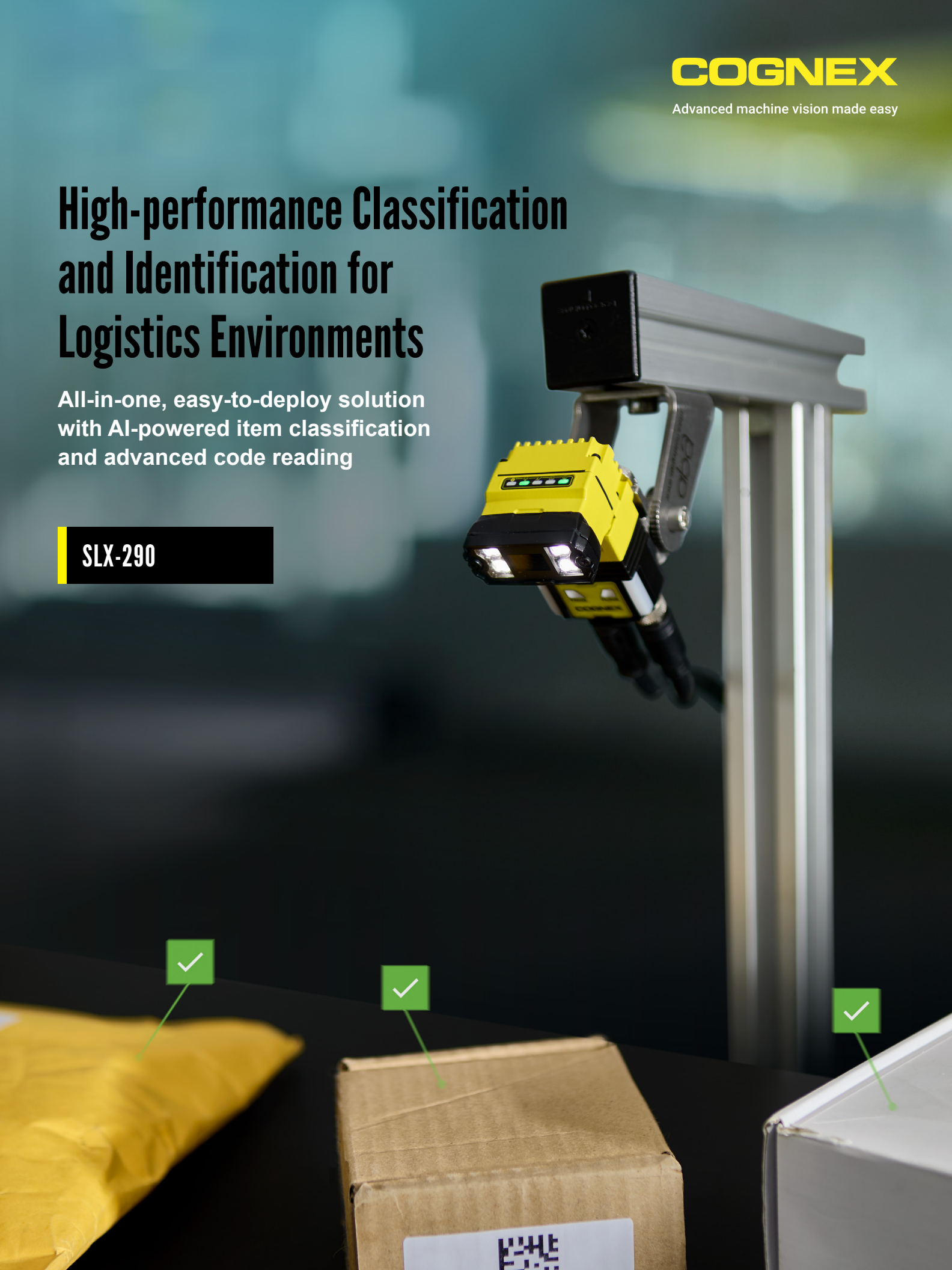
COGNEX

Advanced machine vision made easy

# High-performance Classification and Identification for Logistics Environments

**All-in-one, easy-to-deploy solution with AI-powered item classification and advanced code reading**

## SLX-290



# Versatile, easy-to-deploy solution for sorting and identification


## Elevate sorting efficiency and improve order accuracy using AI-powered classification and advanced barcode reading

**SLX-290**

The compact SLX-290 is a scalable, easy-to-install system built for short-distance sorting and identification. It combines AI-powered classification with high-performance barcode scanning to improve accuracy, cut waste, and enhance traceability. Fast setup reduces startup costs, while the on-device management console simplifies deployment and maintenance of multiple units, minimizing downtime and operating expenses.

## Purpose-built

Compact in design, the SLX-290 improves quality control and traceability in tight spaces. Minimize sorting and tracking errors, while reducing rework costs with pre-trained AI classification and advanced decoding technology.

## Easy to set up

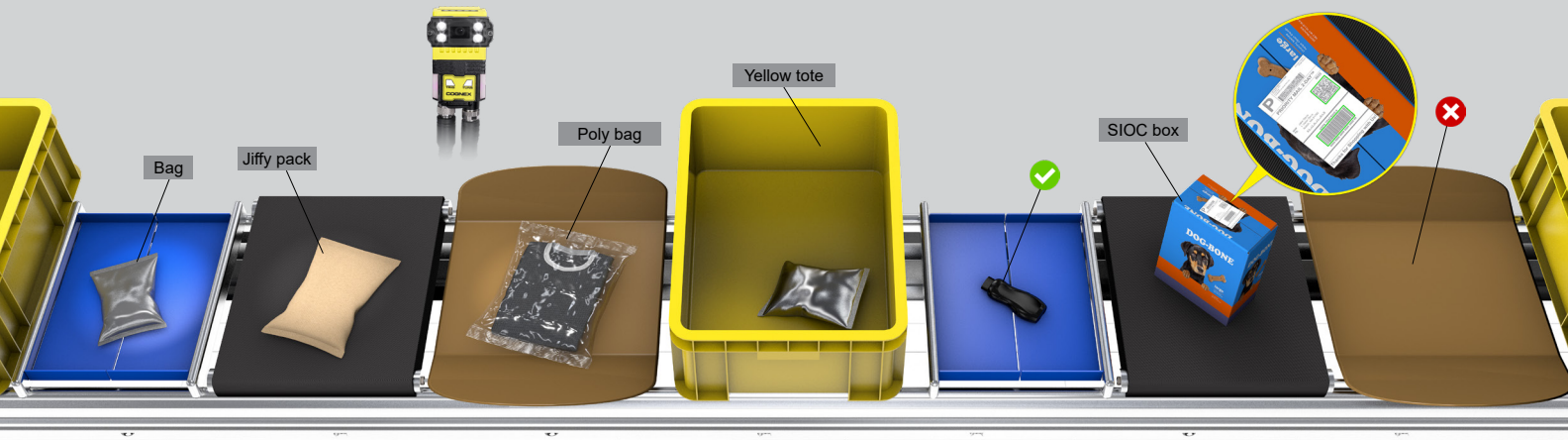
Non-technical personnel can deploy the SLX-290 within minutes. Simply unbox the unit, follow the guided setup in the web-based UI, and you're ready to go, minimizing initial downtime and increasing line efficiency.

## Scalable deployment

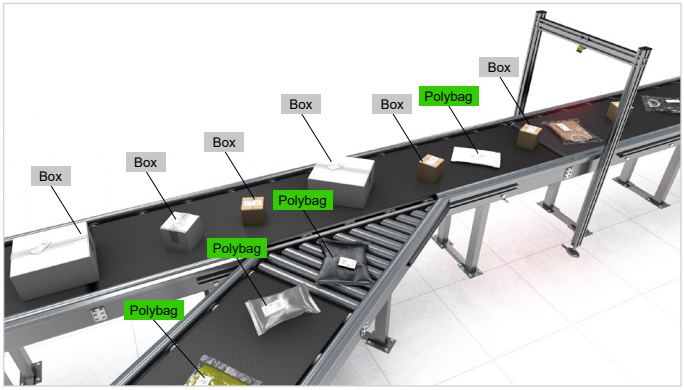
The SLX-290 scales efficiently across the warehouse with integrated multi-device management, allowing fast configuration changes and streamlined firmware updates without requiring an external PC.

## Robust performance handles process variability, such as:

- Barcode label quality, position, and orientation
- Hygiene issues
- Different carrier and tray types
- Package types



# Application examples

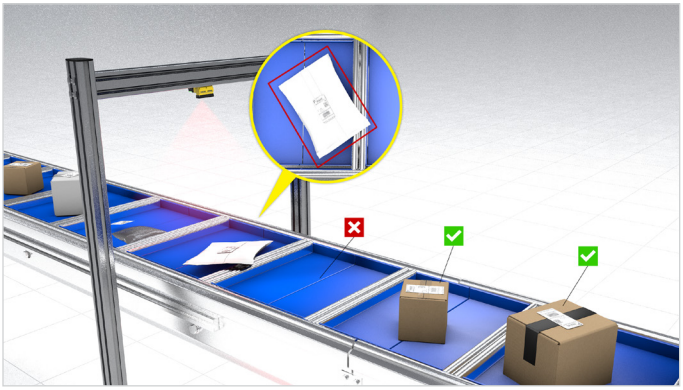



## Item classification

Optimize material handling by categorizing various package types and routing them accordingly.

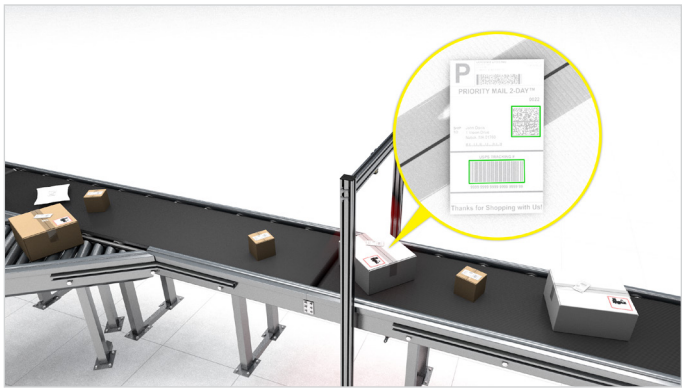
## Print and apply label verification

Reduce lost shipments due to poorly applied labels by identifying mis-applied labels and routing them for rework.



## Presence/absence detection

Minimize process errors by verifying the presence or absence of lightweight and irregular items before scanning or routing.



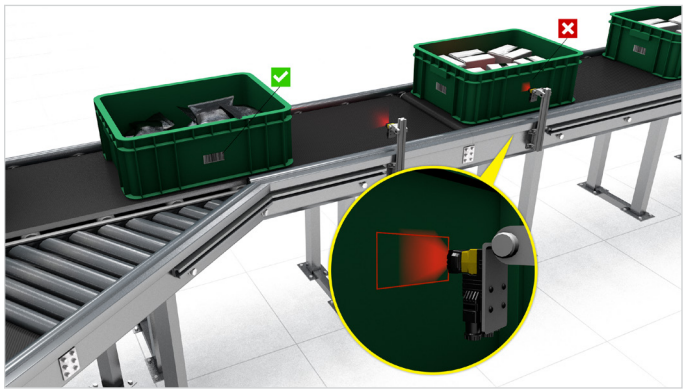
## Multi-code reading

Decode complex labels that have both 1D and 2D codes on them, like those found on Ship in Own Container (SIOC) packaging.

# Application examples

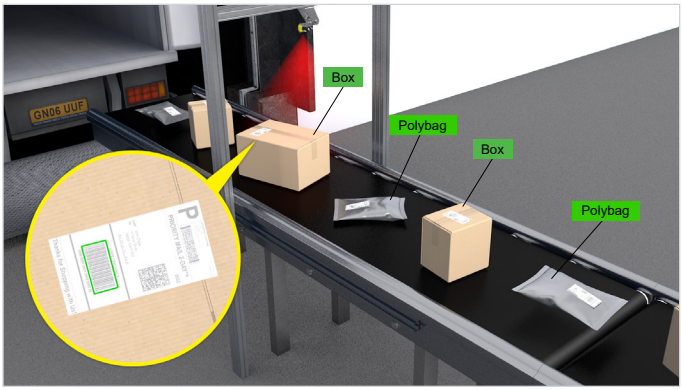
## Identify flow problems in bottleneck areas

Detect equipment issues or jams in hard-to-reach areas like ASRS, chutes, and conveyor bellows.



## Code reading and label detection

Ensure scanning occurs only when a barcode is present, diverting unlabeled packages for relabeling to minimize downtime.



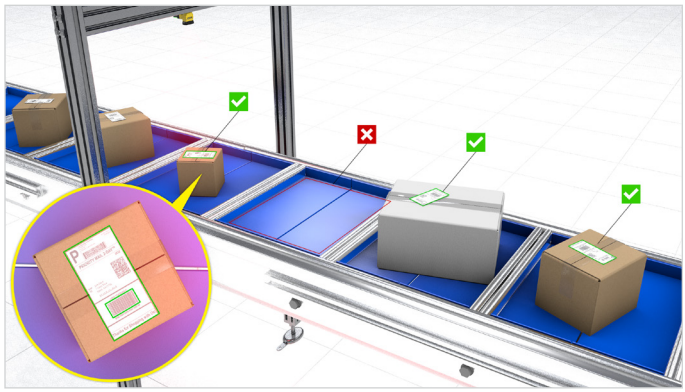

## Inbound scanning

Speed up incoming goods processing at the dock door by decoding barcodes and classifying inbound packages for optimal material handling.

## Returns processing

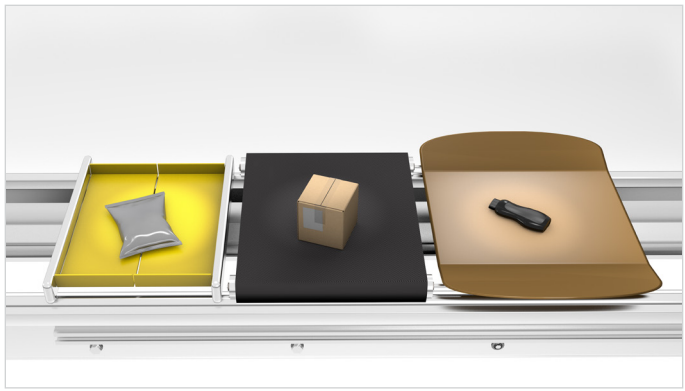
Improve efficiency of the returns process with hands-free, overhead-mounted barcode readers that verify receipts against the RMA list.

# Key benefits



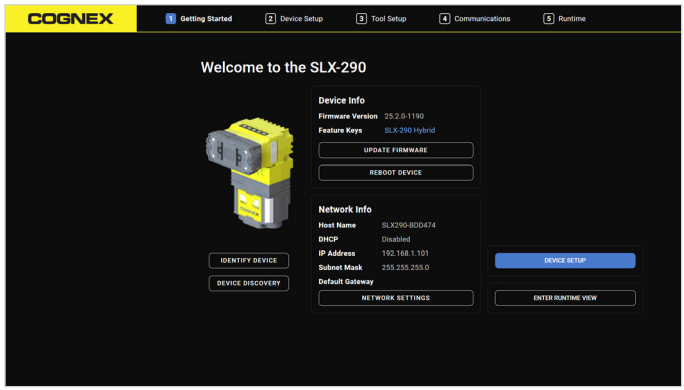
## Streamline inspections and maintenance

The SLX-290 combines visual inspection and barcode reading in one device, eliminating the need for separate devices, to increase efficiency, save space, reduce costs, and simplify maintenance.



## Fast, error-free sorting–every time

Accelerate sorting speed and minimize errors with AI-powered item classification, pre-trained to ensure consistency across various carrier types, packaging, contrasts, and backgrounds.



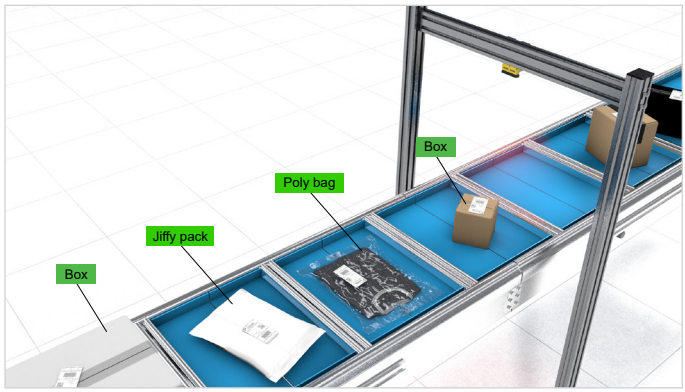

## Simply unbox and deploy

Non-technical personnel can set up the SLX-290 in just minutes, thanks to the web-based guided user interface (UI), which minimizes line downtime and generates results quickly. No software to download or external server needed.


## Enhance process quality without compromising throughput

The AI-accelerated SLX-290 delivers up to 99.9% read rates and performs item classification tasks with high accuracy at line speeds.

# Key features

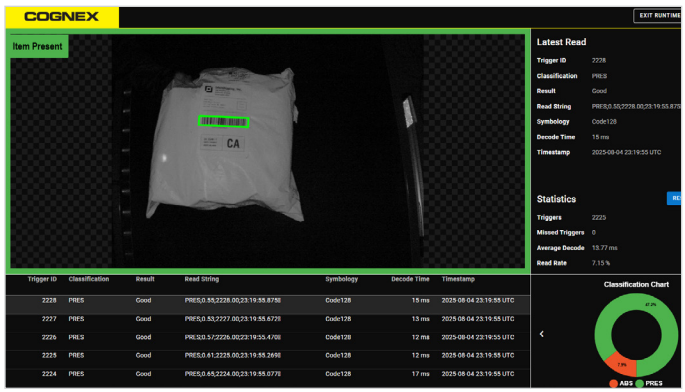



## AI-powered detection and classification

Improve process quality by confirming the presence/absence of objects and classifying them by type on sorter trays.

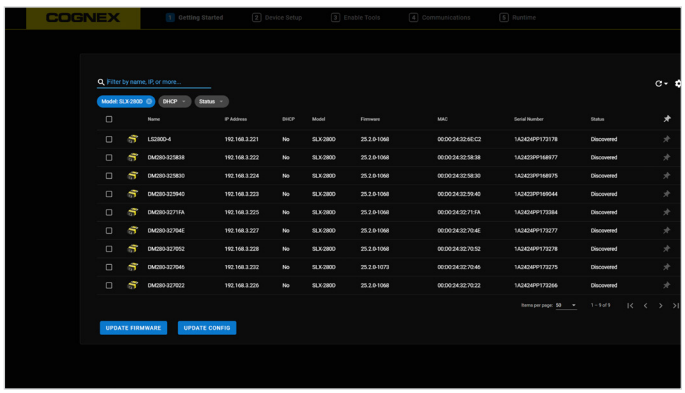
## Advanced barcode reading technology

Solve complex code reading challenges, such as reading multiple 1D and 2D codes on a single box in one pass.




## Web-based UI with guided setup

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




## Embedded multi-device management

Connect, configure, and maintain multiple devices from within the SLX-290 web UI.

# Feature Comparison: SLX-290 vs. Conventional Solutions

## Common Application Characteristics

| | Conventional Solutions | SLX-290 |
|---|---|---|
| **Setup and deployment** | Setup requires external PC or software download | Web-based UI eliminates the need for a PC and software downloads |
| **Scalability** | Complex: Often requires a separate server on the network to perform updates | Replicate configurations or push firmware updates over the network from a single device |
| **System intelligence** | Limited output data | Rich, customizable output data |

## Barcode Reading

| | 1D barcode reader | SLX-290 |
|---|---|---|
| **Code reading** | Only reads 1D codes in a horizontal or vertical format; cannot tolerate moderate code rotation or read 2D codes | Omnidirectional code reading: Accurately decode 1D and 2D barcodes at any angle |
| **Belt coverage** | 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-290 |
|---|---|---|
| **Vision tool training requires** | Complicated: requires vision expert | Pre-trained AI allows anyone to set up applications in <15 min |
| **Object variation** | Complicated logic required to handle any variation | Handles a wider range of variation without skilled intervention |
| **Background and hygiene variation** | Requires clean, consistent backgrounds | Detects against any background |

# Elevate order accuracy and sorting quality

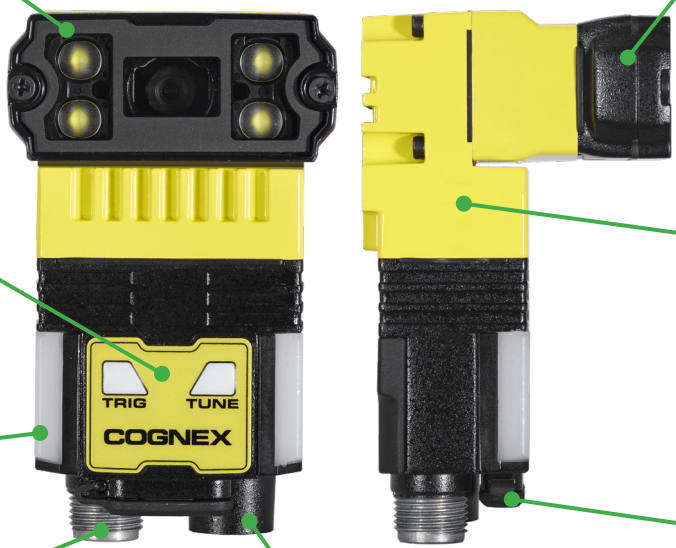
**Purpose-built lens and lighting** support a wide working range for greater belt coverage

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

**Neural processing unit** increases performance via AI acceleration

**Indicator lights** provide operator feedback

**Powered by 24V**




**100 Mbps Ethernet** enables fast communication speeds

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

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

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

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

## Drive increased Operational Equipment Efficiency

The SLX-290 streamlines workflows, reduces manual labor, and enhances throughput, improving OEE.

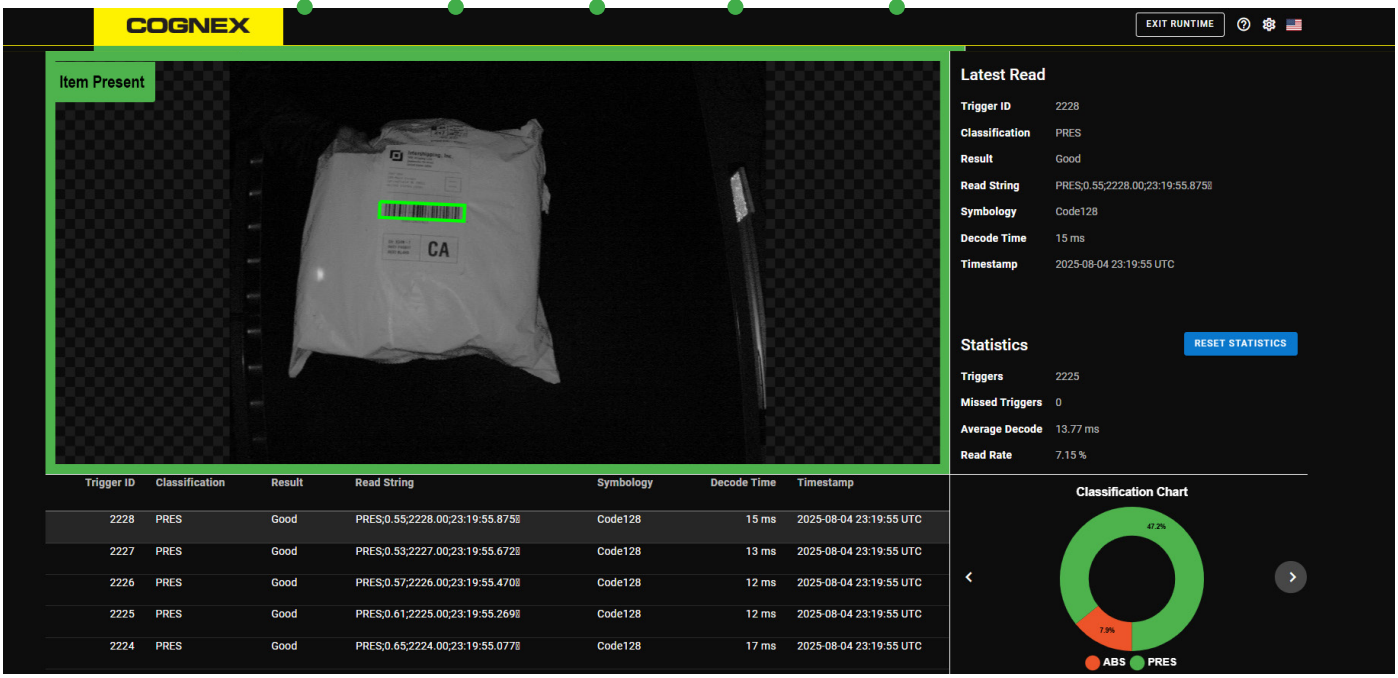
Improve line efficiency by capturing item classification data, enabling control systems to optimize gaps and speed for different package types in real-time.

Reduce manual labor with automated inspections that deliver consistent, reliable results across sorter lines 24/7.

Improve sorting system efficiency by proactively detecting conditions that cause downtime, such as equipment jams or objects falling off sorter trays.

# 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 set up tool(s) to be used.
4. Configure communications protocols.
5. Enter runtime monitoring view.




## 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-290 Specifications

| | SLX-290 (Core) | SLX-290 (Hybrid) |
|---|---|---|
| **Functionality & Tool Sets** | | |
| Tool Set | Barcode decoding, EL Classify | Barcode decoding, EL Classify |
| Tool Use | Single tool | Single tool or combined tools |
| **Imaging & Performance** | | |
| 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, white | |
| **Connectivity & Communications** | | |
| 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 | |
| **Power & Electrical** | | |
| Power Requirements | 24 V DC ± 10% | |
| Power Consumption | ≤ 7.5 W | |
| **Physical & Environmental** | | |
| Dimensions | 50 x 83.6 x 48.4 mm | |
| Weight | 170 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 | Four M3 threaded mounting holes. Pattern: 37 x 21.1 mm (1.46 x 0.83 in) is compatible with the existing mounting brackets for the DM280 / IS2800 | |
| **Compliance** | | |
| Certifications | BIS, CE, ESD, Eye-Safety, TÜV SÜD NRTL | |

# 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

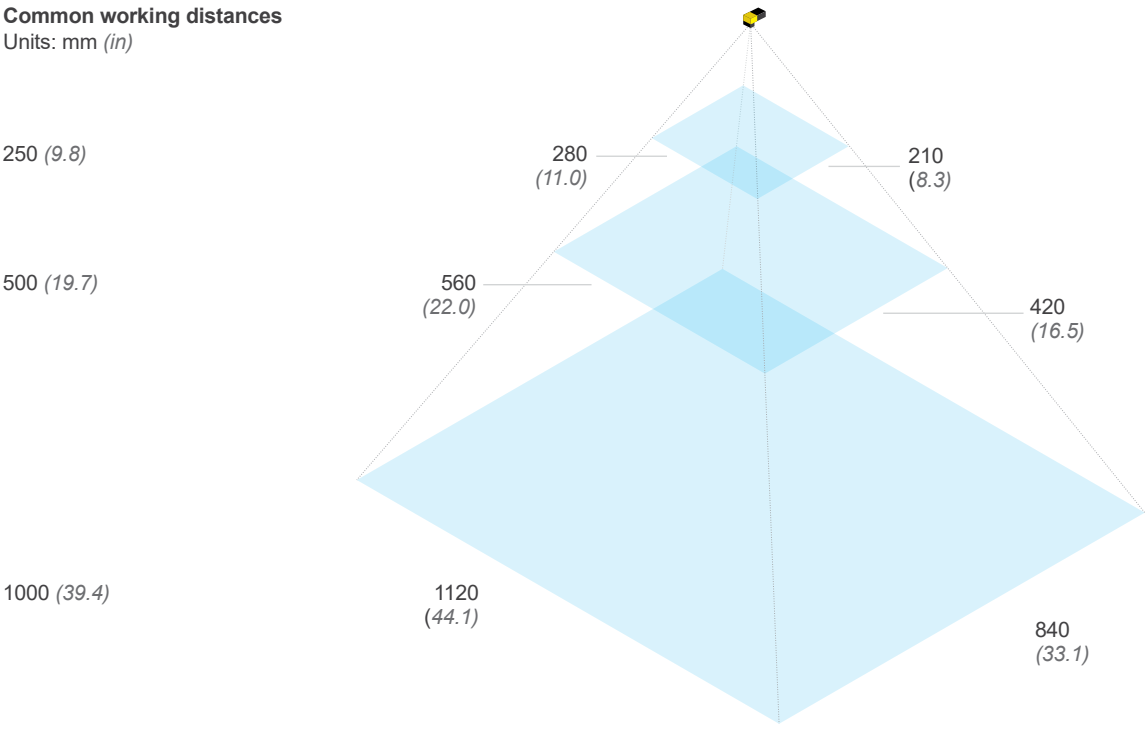
| | Product ID | Description |
|---|---|---|
|  | CCB-CIO-40507-XXX | Shielded Secondary Cable 4pin |
|  | DMA-PS-110VAC-24DC | Laptop Power Supply, 110V AC to 24V |
|  | CCB-CIO-42751-000 | Murr, M12 Cable T-Splitter |
|  | CCB-CIO-FLEX-IN-3 | Input W cable, Single Device, 3m |
|  | CCB-CIO-51001-XXX | 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

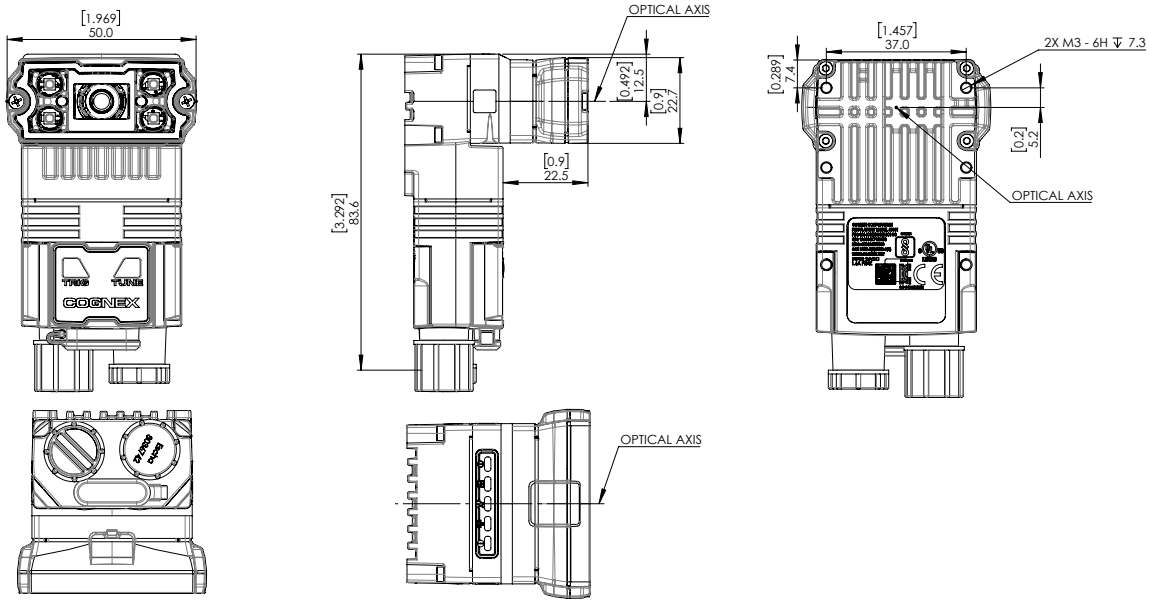
**Common working distances**
Units: mm *(in)*




# Dimensions

## SLX-290

**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**

# 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.


COGNEX

**Advanced machine vision made easy**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