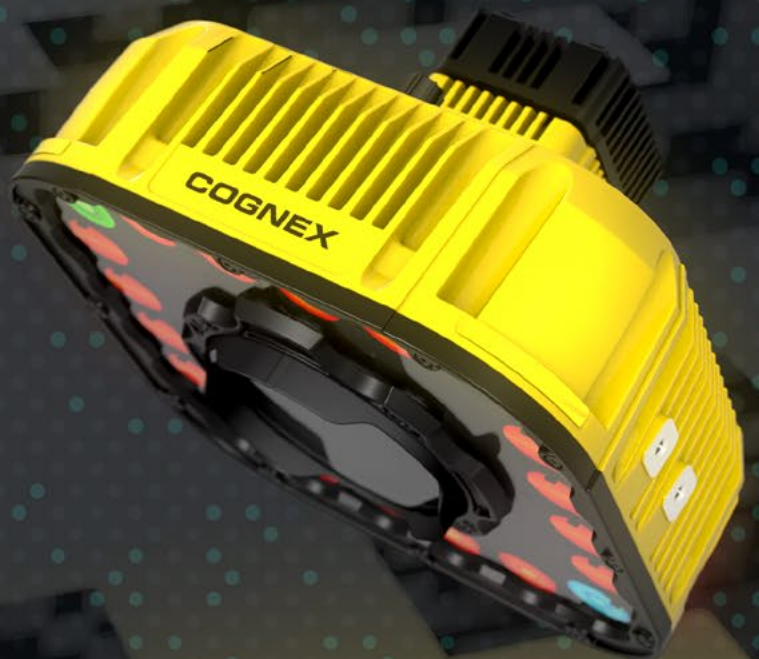


**COGNEX**

# BARCODE READERS

Fixed-mount - Handheld - Verifiers





# READ ANY CODE, EVERY TIME

Nearly every product uses a 1D or 2D barcode to automate and simplify identification and data capture. The basic process in reading codes is to 1) illuminate the code, 2) locate the code, and 3) extract the data. Organizations must be able to read codes quickly and accurately for maximum efficiency and throughput.

Cognex image-based barcode readers decode 1D and 2D codes, from printed labels to the hardest to read direct part mark (DPM) codes, and deliver industry-leading read rates. Advanced technology, modular options, and easy setup helps reduce costs, optimize performance, increase throughput, and control traceability.

## INDUSTRIES

Cognex provides solutions to nearly all manufacturing and logistics industry sectors, including:

- Aerospace
- Airport Baggage Handling
- Automotive
- Consumer Products
- Ecommerce Fulfillment
- Electronics
- Food and Beverage
- Pharmaceutical
- Retail Distribution

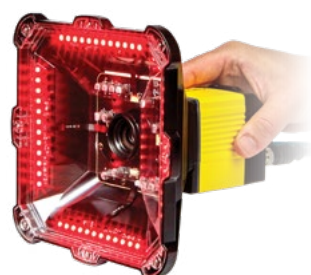
### Fixed-Mount Barcode Readers



### Handheld Barcode Readers



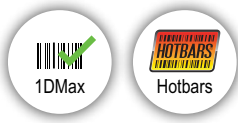
### Barcode Verifiers





# PATENTED DECODING TECHNOLOGY AND IMAGE FORMATION TOOLS

Cognex products are optimized with patented decoding algorithms and advanced technologies to ensure continuously high read rates for the most difficult and degraded 1D and 2D codes.

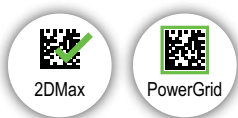


## 1DMax Algorithm with Hotbars Technology

1DMax<sup>®</sup> with Hotbars<sup>®</sup> 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.

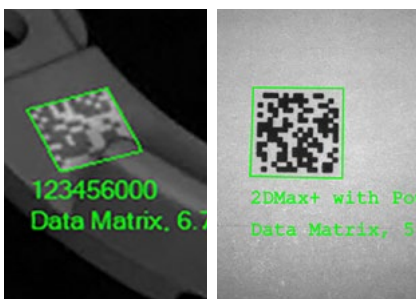


	TYPICAL 1D ALGORITHM	HOTBARS IMAGE ANALYSIS
Noise		
Specular		
Perspective		
Quiet Zone		
Contrast		
Damage		



## 2DMax Algorithm with PowerGrid

2DMax<sup>®</sup> with PowerGrid<sup>®</sup> is a breakthrough 2D decoding algorithm and technology designed to read 2D codes (including Data Matrix and QR codes) with significant damage to or complete elimination of a code's finder pattern, clocking pattern, or quiet zone.



No finder pattern



No finder or clocking pattern



Quiet zone violation

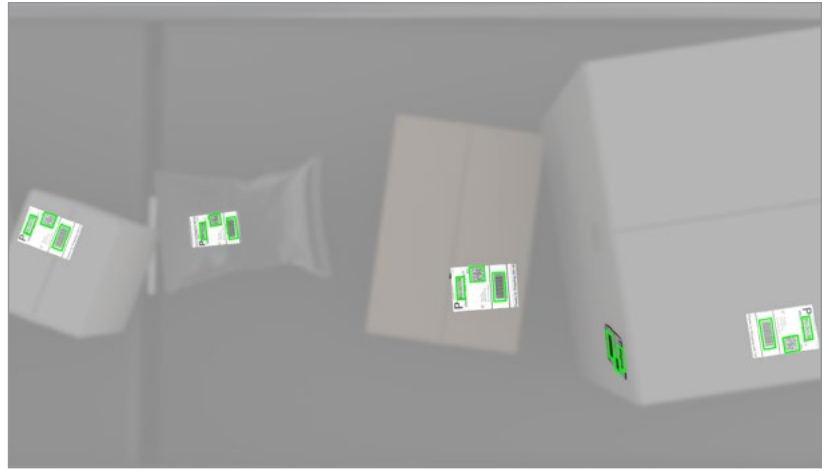


Stripe



## 1D/2D QuickSort

1D/2D QuickSort™ is a powerful decoding algorithm that boosts throughput during complex, multi-symbology applications by leveraging artificial intelligence (AI) to locate codes faster and differentiate between 1D and 2D codes using minimal processing power.



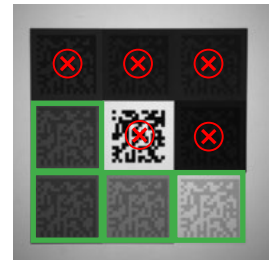
## High Dynamic Range (HDR) Technology

HDR imaging uses the latest CMOS image sensor technology, which is 16x more detailed than conventional sensors, to globally enhance image quality and contrast.

Target Source



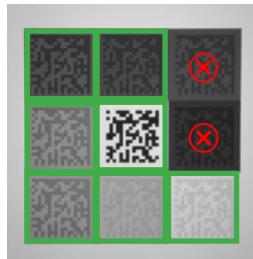
Conventional Sensor



## HDR+

HDR+ further increases localized contrast changes automatically.

This creates a more uniform image in a single acquisition allowing greater depth-of-field, faster line speeds, and improved handling of difficult codes.

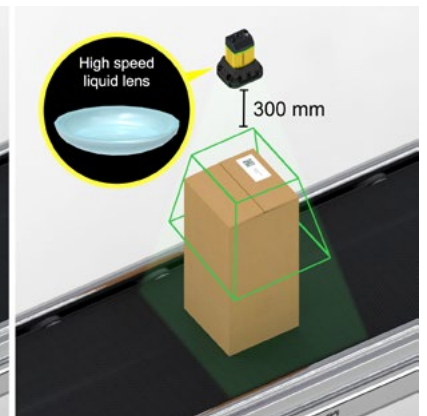
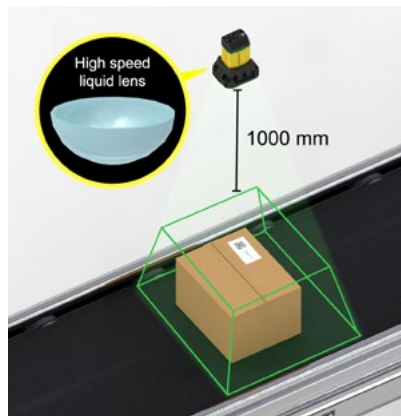


*HDR+ technology enables reading an increased range of codes than is possible with conventional or other HDR technologies.*



## Liquid Lens Technology

This dynamic autofocus technology automatically adapts to changes in working distances for presentation scanning and high-speed, high-variability applications. Available in 8, 10, 16, 24, and 35mm lenses.





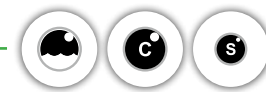
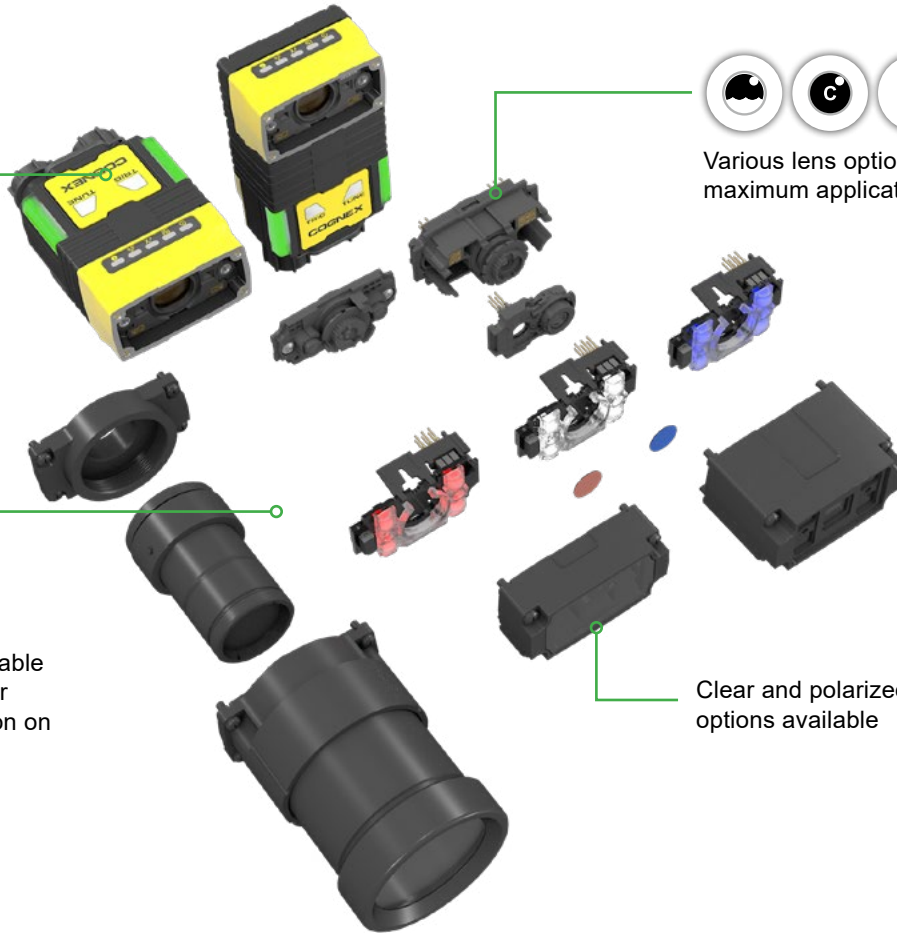
# MODULAR DESIGN FOR MAXIMUM FLEXIBILITY

Cognex offers modular software and hardware options to solve a wide range of barcode reading challenges. This flexibility enables fast, easy integration into your existing infrastructure, while providing a solution that allows you to adapt as your needs change.



Patented technology and advanced algorithms optimize performance

Straight and right-angle configuration options



Various lens options for maximum application coverage



Field-interchangeable lighting options for optimal illumination on all surface types

Clear and polarized cover options available



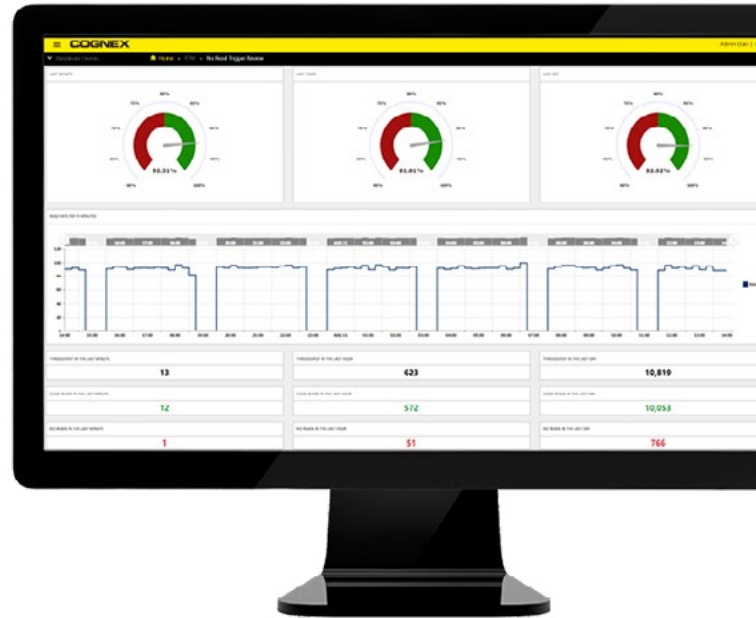
Broad communications and network connectivity options available

# EASY SETUP, OPERATION, AND MAINTENANCE

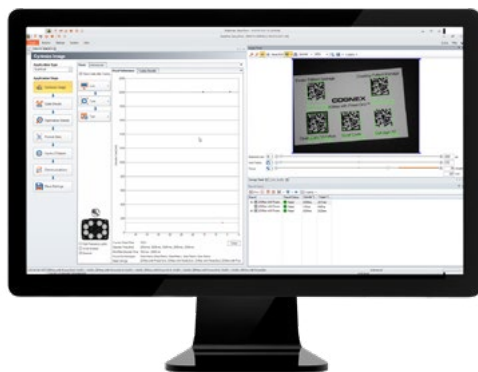


## Cognex Edge Intelligence

Cognex Edge Intelligence (EI) technology transforms big data into smart data to improve overall equipment effectiveness 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.

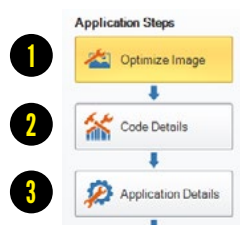


Performance dashboards, read rate trends, setup, commissioning, and calibration tools

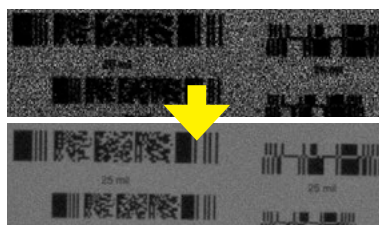


## DataMan Setup Tool

The DataMan® Setup Tool software simplifies installation and operation of Cognex barcode readers. It provides step-by-step guidance, auto-adjusts and optimizes variable parameters, and captures code images in real-time for user review.



Step-by-step visual guidance



Pre- and post-image optimization tools

Result	Result Status
2DIAMONDS	Read
2DIAMONDS	Read
2DIAMONDS	Read
2DIAMONDS	Read
2DIAMONDS	Read
2DIAMONDS	Read
2DIAMONDS	Read




Image and read result history

# FIXED-MOUNT BARCODE READERS

DataMan fixed-mount, image-based barcode readers offer advanced technology, processing power, modularity, and ease of use for challenging manufacturing and logistics applications.

## DataMan 380 Series

High-resolution imager with powerful decoding technology, delivering higher throughput and read rates across industries and applications.

POWER	RESOLUTION	CONNECTIVITY
 15X	Up to 16MP	 

### FEATURES

 Hotbars	 PowerGrid	 1D/2D QuickSort	 High Speed Liquid Lens	 EI	 Laser Aimer	 HDR+
---	---	---	--	--	---	--



\*Including integrated light. Base dimensions are 94.4 mm (L) x 69 mm (W) x 79.4 mm (H)

## DataMan 580 Fixed-Mount Barcode Reader for Tunnel Applications

Enables greater throughput while maintaining high read-rates and short gaps between packages on high-speed lines utilizing a 9 MP imager and Cognex's 1D/2D QuickSort algorithm.

➔ PAGE 11: COGNEX MODULAR VISION TUNNELS







## DataMan 370 Series

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

### POWER



### RESOLUTION

5MP

### CONNECTIVITY



### FEATURES



\*Including integrated light. Base dimensions are 73 mm (L) x 54 mm (W) x 42 mm (H)



## DataMan 280 Series

Premium decoding technology in a compact form factor.

### POWER



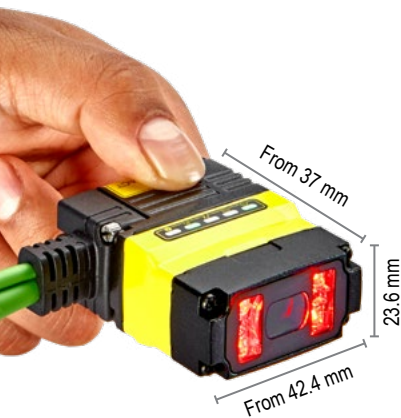
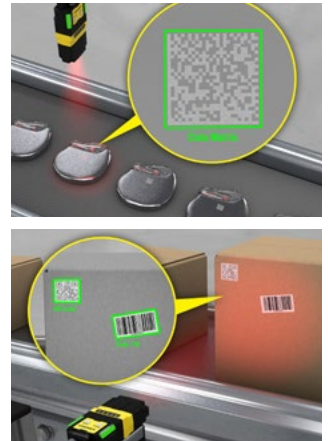
### RESOLUTION

Up to 2MP

### CONNECTIVITY



### FEATURES



## DataMan 80 Series

Compact reader ideal for decoding 1D/2D label-based codes and direct part marks in confined spaces.

### POWER



### RESOLUTION

1.6MP



















### CONNECTIVITY



### FEATURES



# FIXED-MOUNT READER SPECIFICATIONS & FEATURES

	70 Series	80 Series	150 Series	260 Series	280 Series	370 Series	380 Series	470 Series
 <b>Resolution</b>	1280 x 960	1440 x 1080	1280 x 960	1280 x 960	1440 x 1080 1920 x 1080	2048 x 1536 2448 x 2048	2840 x 2840 4096 x 3000 5320 x 3032	2048 x 1536 2448 x 2048
 <b>Processing Power<sup>1</sup></b>	1.7X	2.5X	2X		4X	5X	15X	7.5X
 <b>Model Variants</b>	L, QL, S, Q	L, QL, S, Q, X	QL, S, Q, X		L, QL, S, Q, X	L, Q, QL, X	QL, X	L, Q, QL, X
<b>Lenses</b>								
 <b>Liquid Lens</b>			✓	✓		✓		✓
 <b>High Speed Liquid Lens</b>		✓			✓	✓	✓	✓
 <b>C-mount</b>	✓	✓	✓	✓	✓	✓	✓	✓
 <b>S-mount</b>	✓	✓	✓	✓	✓			
<b>Symbologies</b>								
 <b>1D</b>	✓	✓	✓	✓	✓	✓	✓	✓
 <b>2D</b>	✓	✓	✓	✓	✓	✓	✓	✓
 <b>Multi-code</b>	✓	✓	✓	✓	✓	✓	✓	✓
<b>Decoding Algorithms</b>								
 <b>1DMax with Hotbars</b>	✓	✓	✓	✓	✓	✓		✓
 <b>2DMax</b>		✓	✓	✓	✓	✓		✓
 <b>PowerGrid</b>		✓	✓	✓	✓	✓		✓
 <b>1D/2D QuickSort</b>							✓	
<b>Technologies</b>								
 <b>Multi-Reader Sync</b>		✓		✓	✓	✓	✓	✓
 <b>HDR</b>		✓			✓	✓	✓	✓
 <b>HDR+</b>							✓	✓
 <b>Standards-Based Grading</b>					✓	✓		✓

	70 Series	80 Series	150 Series	260 Series	280 Series	370 Series	380 Series	470 Series
<b>Lighting Modularity</b>								
 Integrated Lighting	✓	✓	✓	✓	✓	✓	✓	✓
 External Lighting					✓	✓	✓	✓
 High Powered Integrated Torch (HPIT)					✓	✓	✓	✓
<b>Communications</b>								
 Discrete I/O	1/1	1/1	2/2	2/4	2/2, 2 user-configurable inputs/outputs	2/2, 2 user-configurable inputs/outputs	2/2, 2 user-configurable inputs/outputs	2/2, 2 user-configurable inputs/outputs
 Serial	✓	✓	✓	✓	✓	✓	✓	✓
 Ethernet		✓		✓	✓	✓	✓	✓
 Gigabit Ethernet		✓			✓	✓	✓	✓
 USB	USB-C	USB/USB-C	USB		USB-C		USB-C	
<b>Additional Features</b>								
 High Speed Steerable Mirror (HSSM)								✓
 Web HMI Capable		✓			✓	✓	✓	✓
 Edge Intelligence		✓		✓	✓	✓	✓	✓
 Modular	✓	✓	✓	✓	✓	✓	✓	✓
 Laser Aimer					280: LED 282: Laser	✓	✓	✓
 IP Rating	IP65	IP67	IP65	IP65	IP67	IP67	IP67	IP67
 ESD-Safe Housing <sup>2</sup>	✓	✓	✓	✓	✓	✓	✓	✓
 SD Card						✓		✓



### <sup>1</sup> Processing Power

The processing power of a reader is measured by how quickly it decodes a barcode and outputs the resulting data. A comparison test simulating a complex 1D/2D multi-code application (consisting of four varied 1D codes and seven varied 2D codes together) was used to determine the processing power of each DataMan fixed-mount barcode reader.



### <sup>2</sup> ESD-Safe Housing

Protects devices and flammable environments from electrostatic discharge (ESD), the sudden flow of static electricity between two objects.



# IMPROVE THROUGHPUT AND EFFICIENCY WITH MODULAR VISION TUNNELS

Cognex Modular Vision Tunnels (MVT) leverage DataMan image-based barcode readers which offer advanced algorithms and decoding technology to achieve up to 99.9% read rates. These readers can also 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 insights into logistics operations, including performance feedback, trends, and operational insights for corrective action.

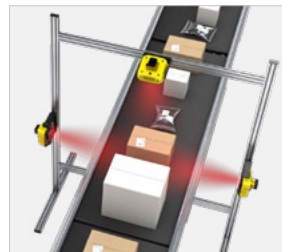


Barcode Assignment prevents multi-reads of codes across small gaps and ensures the right code is assigned to the right package.

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.



Top-side MVT



3-Sided MVT



5- and 6-Sided MVT



To learn more, [download the Modular Vision Tunnels datasheet.](#)

# HANDHELD BARCODE READERS



Powered by patented technology, DataMan handheld barcode readers offer rugged housing and modular communication options for your toughest applications.



## DataMan 8700DX

Offers cutting-edge performance and operator feedback on the toughest DPM and label-based codes while withstanding harsh oils, dirt, and water.

### RESOLUTION

1.6MP

### CONNECTIVITY



### FEATURES



## DataMan 8700DQ

Decodes well-marked DPM codes with IP67-rated housing and an OLED display screen for easy setup and use.



## DataMan 8700LX

Decodes well-marked 1D and 2D label-based codes, with an OLED display screen for easy setup and use.



## DataMan 8700HD

Decodes well-marked 1D and 2D label-based codes as small as 2 mil in size.



### RESOLUTION

1.6MP



















### CONNECTIVITY



### FEATURES



# HANDHELD READER SPECIFICATIONS & FEATURES

	8700HD	8700LX	8700DQ	8700DX
 Resolution	1.6 MP	1.6 MP	1.6 MP	1.6 MP
<b>Lenses</b>				
 High Speed Liquid Lens				✓
<b>Symbologies</b>				
 1D	✓	✓	✓	✓
 2D	✓	✓	✓	✓
Minimum 1D/2D code size	2 mil / 2 mil	4 mil / 5 mil	3 mil / 5 mil	3 mil / 5 mil
<b>Decoding Algorithms</b>				
 1DMax with Hotbars	✓	✓	✓	✓
 2DMax	✓	✓	✓	✓
 PowerGrid	✓	✓	✓	✓
<b>Technologies</b>				
 HDR	✓	✓	✓	✓
<b>Lighting Modularity</b>				
 Integrated Lighting	Red diffuse	Red direct lighting	White diffuse lighting	Red diffuse, polarized, and direct lighting
<b>Communications</b>				
 Wi-Fi	✓	✓	✓	✓
 Ethernet with Industrial Protocols	✓	✓	✓	✓
 Serial	✓	✓	✓	✓
 USB	✓	✓	✓	✓
 Bluetooth	✓	✓	✓	✓
<b>Additional Features</b>				
 OLED Display Screen	✓	✓	✓	✓
 Modular	✓	✓	✓	✓
 Drop Test	Multiple drops from 2.5 meters			
 IP Rating	Handheld reader: IP67; Base station: IP65			

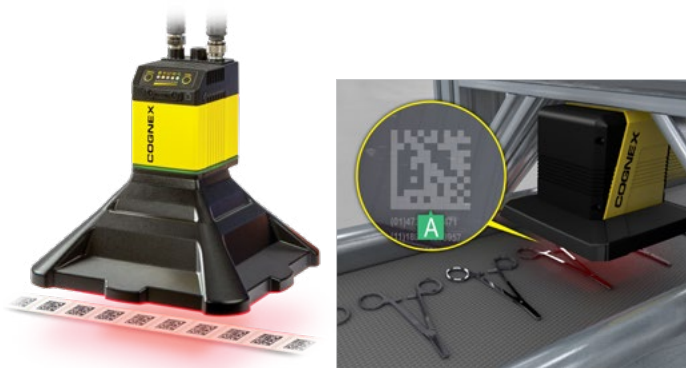


# BARCODE VERIFIERS

Barcode verification is the process of grading the quality of barcodes to globally accepted standards. Cognex barcode verification technology ensures the readability and compliance of codes and provides detailed summary reports.

## DataMan 475V Series Inline Verifier

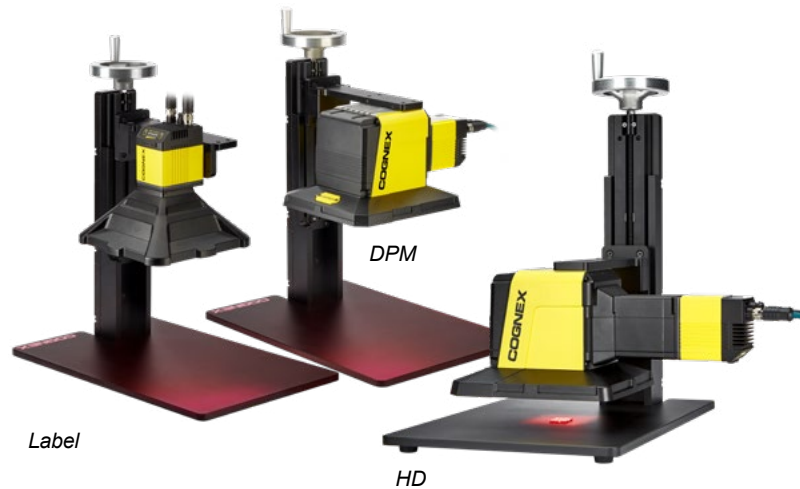
Grades 1D, 2D, and DPM codes from a fixed position on the production line.



Label and DPM models

## DataMan 475VS Series Offline Verifier

Grades 1D, 2D, and DPM codes as small as 1 mil in size on a wide range of parts with an easy-to-use adjustable height stand.

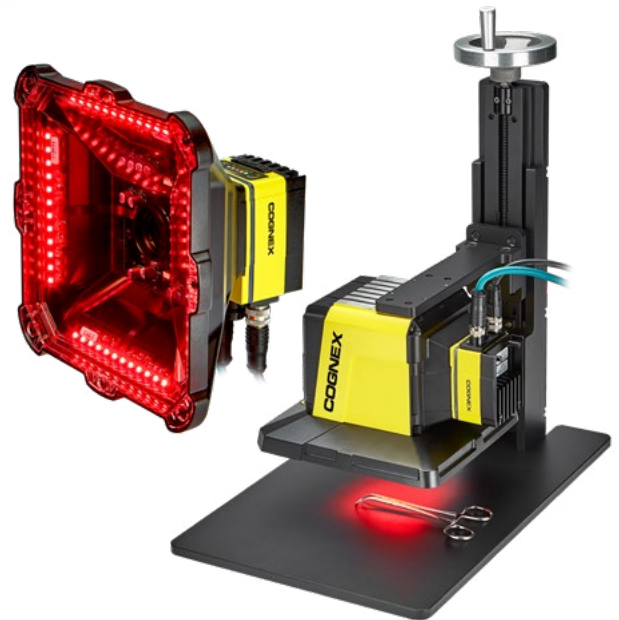


Label

HD

## In-Sight 7905V Series Verifier

Combines powerful vision and verification technology to perform multiple tasks at once including grading barcode quality, reading text, and verifying code placement on parts.



Inline and offline label and DPM models.



## DataMan 8072V Series Handheld Verifier

Grades the most difficult direct part mark (DPM) codes with 30/45/90-degree angle lighting options.



## Auto-generate code quality data and reports















Barcode verification software provides visual diagnostic information to identify one-off or trending code quality issues. Export the data or transfer raw data to your own database for further analysis.

The screenshot shows the software interface for barcode verification. Key features are annotated with green lines and text:

- Overall grade:** Points to the top right section showing the overall grade: **D (1.0)** with a score of **1.6/25/660/45**.
- Individual quality parameter grades:** Points to a list of parameters on the right side, each with a color-coded grade:
 

Parameter	Grade
Unusual Error Correction (UEC)	33% D
Symbol Contrast (SC)	65% B
Modulation (MOD)	A
Reflection Margin (RM)	C
Axis Nonuniformity (ANU)	0.9% A
Grid Nonuniformity (GNL)	1.1% A
Fixed Pattern Damage (FPD)	4.0 A
Left 1/2 Side (L1/2)	A
Bottom 1/2 Side (B1/2)	A
Left Outer Zone (L2Z)	A
Bottom Outer Zone (B2Z)	A
Top Outer Zone (T2Z)	A
Right Outer Zone (R2Z)	A
Top Transition Ratio (TR)	0% A
Right Transition Ratio (RT)	0% A
Top Clock Track (CT)	A
Right Clock Track (RCT)	A
Average Grade (AG)	4.0 A
INCODE	A
- Pre-loaded application standards:** Points to the 'Generic Acceptance Criteria' section, which shows 'Pass' and 'Data: IN1000'.
- Real time trend analysis:** Points to a graph at the bottom showing a fluctuating line representing grade trends over time.
- Adjustable grade trend threshold alerts:** Points to a green bar at the bottom of the graph indicating a threshold.

# BARCODE VERIFIER SPECIFICATIONS & FEATURES

	DataMan 8072V	DataMan 475V Inline	DataMan 475VS Offline	In-Sight 7905V
 <b>Model Variants</b>	Standard, HD	Label, DPM	Label, DPM, HD	Label, DPM
 <b>Resolution</b>	1.2 MP	5 MP	5 MP	5 MP
 <b>Field of View</b>	Standard: 27 x 20 mm HD: 17 x 13 mm	Label: 80 x 60 mm DPM: 35 x 29 mm	Label: 80 x 60 mm DPM: 35 x 29 mm, HD: 11 x 9 mm	Label: 80 x 60 mm DPM: 35 x 29 mm
 <b>Minimum X-Dimension</b>	Standard: 6.0 mil HD: 3.5 mil	Label: 6.0 mil DPM: 3.75 mil	Label: 6.0 mil DPM: 3.75 mil HD: 1 mil	Label: 6.0 mil DPM: 3.75 mil
 <b>OCR and code dimensioning tools</b>				✓
<b>Symbologies</b>				
 <b>1D</b>		✓	✓	✓
 <b>2D</b>	✓	✓	✓	✓
 <b>DPM</b>	✓	✓	✓	✓
<b>Lighting Modularity</b>				
 <b>30-degree</b>	✓	DPM	DPM, HD	DPM
 <b>45-degree</b>	✓	Label, DPM	Label, DPM, HD	Label, DPM
 <b>90-degree</b>	✓	DPM	DPM, HD	DPM
<b>Additional Features</b>				
 <b>IP Rating</b>	IP65	IP65	IP65	N/A
 <b>Industry Standards Compliance</b>	ISO/IEC 15415, ISO/IEC TR 29158, ISO/IEC 15426-2	ISO/IEC 15415, ISO/IEC 15416, ISO/IEC TR 29158, ISO/IEC 15426-1, ISO/IEC 15426-2		
 <b>Applications Standards</b>	GS1, MIL-STD 130 IUD, UDI, HIBCC, ISO 15434	GS1, MIL-STD 130 IUD, UDI, HIBCC, ISO 15434, Russian Crypto-Code, Custom Application Standards		



# MODELS AND SYMBOLOGIES

Regardless of symbology, size, quality, printing method, or surface, Cognex has a barcode reader that can read your code, ensuring maximum efficiency and traceability.

Model	Reads
L	Fixed position 1D barcodes
QL	Omnidirectional 1D barcodes
S	Slow or indexed well-marked 1D and 2D codes
DQ/Q	High-speed or tough 1D and 2D codes
DX/X	Challenging 1D and 2D codes, including DPM codes
UHD	Ultra-small, well-marked 2D DPM codes (0.7 mil)
HD	Small 1D and 2D codes (6-10 mil)
HDX	Smaller 1D and 2D codes (2-5 mil)
SR	Codes from standard range
ER	Codes from extended-range (very high shelves)
XR	Codes on hanging signs or ceilings
UV	Ultraviolet (invisible) codes
V	Verifies or grades the quality of codes

## 1D Codes

UPC/EAN/JAN



Codabar



Code 11



Code 93



Code 128



GS1 DataBar



Code 25



Code 39



Interleaved 2 of 5



MSI Plessey



Pharmacode



## 2D Codes

Data Matrix



QR



Micro QR



PDF417



MicroPDF



Aztec Code



DotCode



## Postal Codes

POSTNET



Intelligent Mail Barcode



PLANET, Australian Post, Japan Post, Royal Mail, UPU

# 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 machine vision solutions combine hardware and software to capture and analyze visual information. The company's wide range of solutions automates manufacturing and distribution tasks for customers worldwide, improving efficiency and quality in applications like inspecting, identifying, locating, and measuring components, products, and packaging. Cognex products incorporate advanced technologies including artificial intelligence to simplify implementation, increase accuracy, and deliver a faster ROI.



**>40 years** in business

**\$830M+** 2023 revenue

**>60%** revenue from EU & Asia

**25K+** global customers

**400+** channel partners

**500+** global customer support resources

**17%** of revenue into R&D

**>1,100** technology patents

**>8 years** developing AI for industrial machine vision

# 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](http://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.

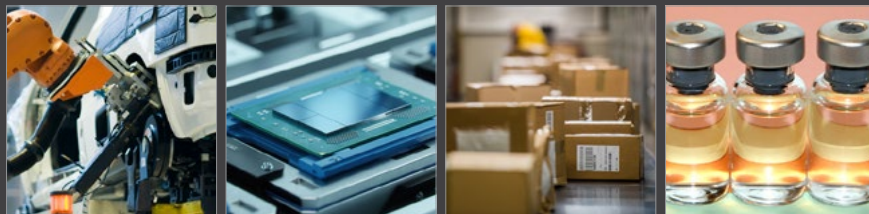
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# COGNEX

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