



**COGNEX**

# Agenda

9:30 AM	9:45 AM	Barcode Concepts
9:45 AM	10:00 AM	DataMan Fixed-Mount Overview
10:00 AM	10:30 AM	Setup Tool Hands-On
10:30 AM	10:45 AM	DataMan Handheld Overview
10:45 AM	11:15 AM	Setup Tool Hands-On
11:15 AM	11:30 AM	PCM vs Verification and RTM Lean
11:30 AM	12:00 PM	Quiz, Q&A

# Who is Cognex?

**Leader**  
in machine vision

**36+**  
years in business

**1,300+**  
employees

**\$486M**  
2014 revenue

**1,000,000**  
systems shipped

**4,000**  
direct customers

**Global**  
offices in 20 countries

**450**  
channel partners



# Cognex Offices

## Americas

### **Corporate Hdq**

- Natick, MA

### **California**

- Hayward
- San Diego

### **Illinois**

- Naperville

### **Indiana**

- Carmel

### **Michigan**

- Plymouth

### **Missouri**

- Chesterfield

### **Oregon**

- Portland

### **North Carolina**

- High Point

## *Pennsylvania*

- Plymouth Meeting

## *Tennessee*

- Franklin

## *Wisconsin*

- West Allis

## *Canada*

- Montreal

## *Brazil*

- São Paulo

## Europe

### *France*

- Paris
- Lyon

### *Germany*

- Aachen
- Karlsruhe

## *Hungary*

- Budapest

## *Ireland*

- Cork

## *Austria*

- Vienna

## *Italy*

- Milan

## *The Netherlands*

- Eindhoven

## *Poland*

- Wroclaw

## *Spain*

- Barcelona

## *Sweden*

- Vasteras

## *Switzerland*

- St. Gallen

## *Turkey*

- Istanbul

## *United Kingdom*

- Epsom
- Silverstone

## Greater China

### *China*

- Beijing
- Chengdu
- Guangzhou
- Nanjing
- Qingdao
- Shanghai\*
- Shenzhen
- Wuhan

## *Taiwan*

- Hsin-Chu City

## Japan

- Tokyo
- Fukuoka
- Osaka
- Nagoya

## KIA

### *India*

- Bangalore
- Pune

### *Korea*

- Seoul

### *Singapore*

- Thailand
- Bangkok

**Sales Engineers,  
App. Engineers,  
& Partners**

# Cognex Product Offering

DataMan



Displacement  
Sensor (3D)

The **Only** Vision Company Offering a  
Complete Line of Machine Vision Products



VisionPro



Checker



In-Sight

# What is a barcode?



**Machine-readable symbol that represents data**

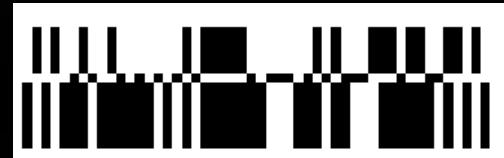
- Includes error correction
- More compact, more reliable and faster than OCR
- Can be indexed or contain permanent data

# Wide variety of barcode types

Linear



DataMatrix



QR-Code



PDF417



UCC.EAN



Postal

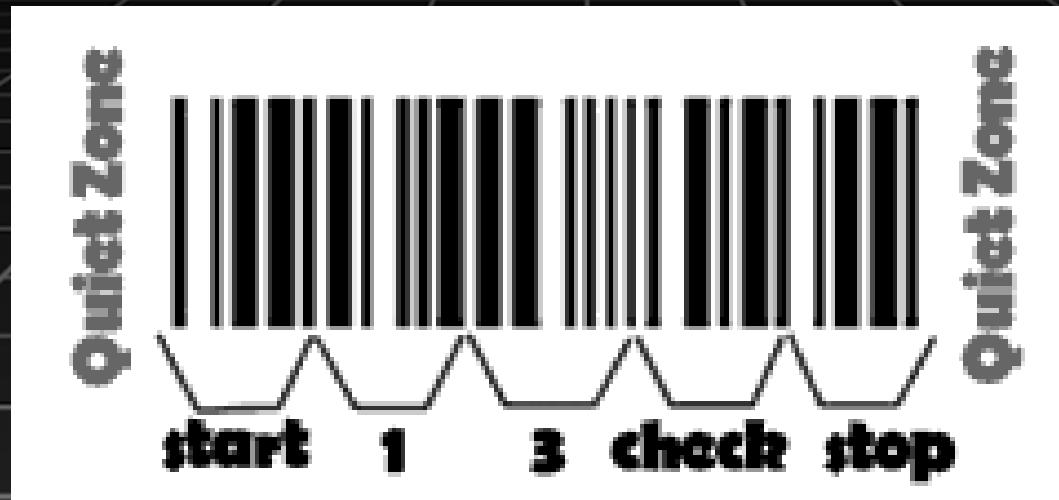


**FEAR NO  
CODE**

**COGNEX**

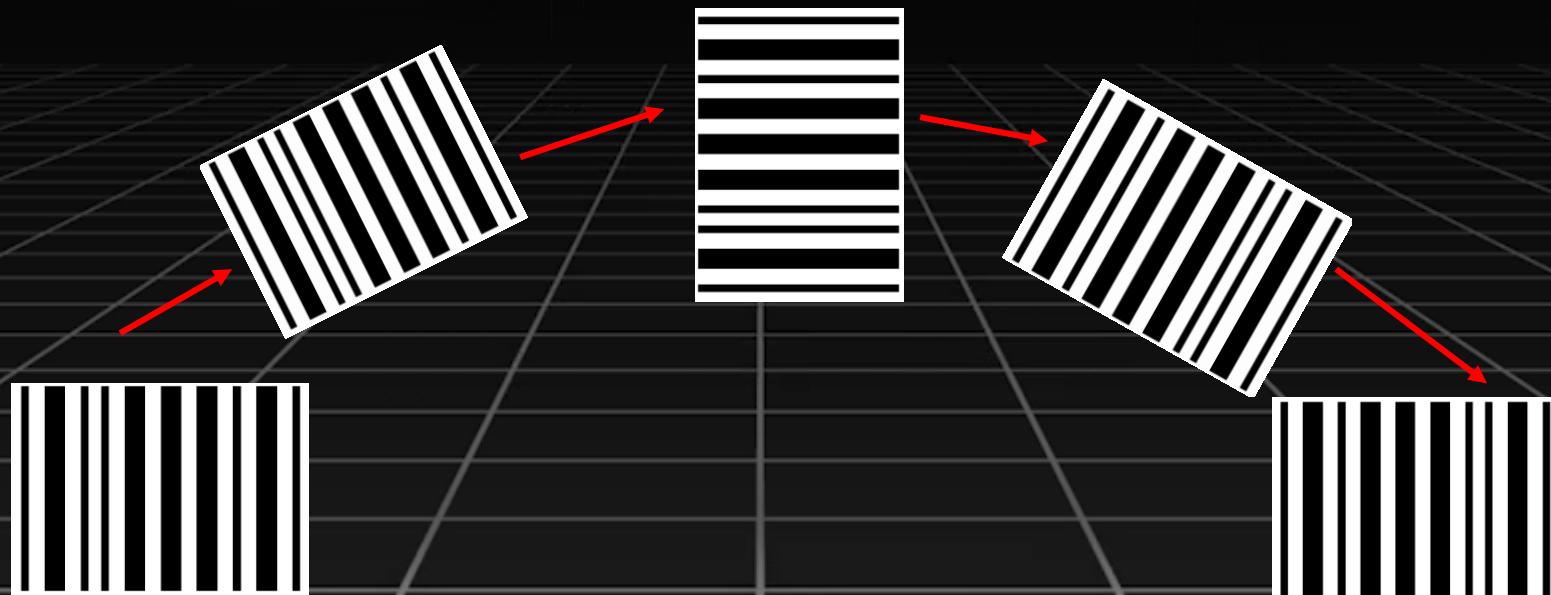
# UPC

- Simple, commonly used 1D code
- ASCII numbers (0-9)
- Start , middle, and end patterns
- UPC-A is most commonly used variant
- Other variants also exist—UPC-E, UPC-U, etc.
- Subset of EAN—European Article Number



# Pharmacode

- Sometimes used in pharmaceutical industry
- Orientation of code matters!
- Integer from 3 to 131070
- Uses only wide and narrow bars
- Not a robust symbology!



## QR Code



### Various different encoding methods

- Model 1, Model 2, and QR Micro
- Supports unicode
- ISO/IEC 18004:2006

### Different levels of error correction

- High: 30%
- Quartile: 25%
- Medium: 15%
- Low: 7%
- Some space trade off associated with error correction

# The Transition from 1D to 2D Codes

**24 square and 6 rectangular formats**

**Cell presence/absence check tolerates poor printing**

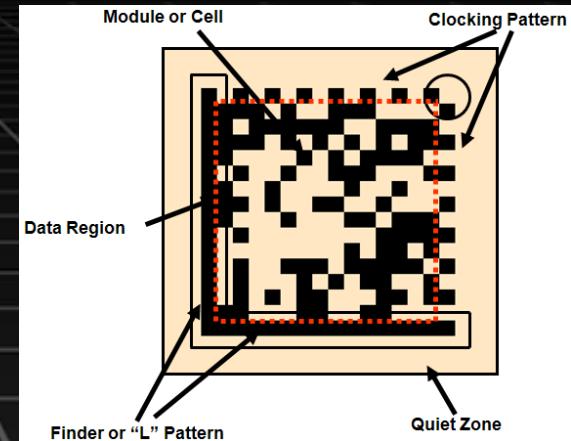
**Error correction improves read rates**

**Scalable**

**Reading accuracy**

- 1 misread error in 10.5 million scans

**Requires an image-based  
ID reader to decode**



# 1D vs 2D



## 1D Codes

Reading Technology is  
common

Indexed reading  
CHEAP to scan

## 2D Codes

Large Data Capacity

High Data Density

Error Correction / Data  
Integrity

Always Omnidirectional

# Commonly Used Terminology

## Resolution

- Number of pixels on Image Chip

## Module- measured in Mils

- Cell, section, or piece of a code

Minimum Size in Pixels to read

1D Code - 1.2 Pixels Per Module

2D Code - 2.5 Pixels Per Module

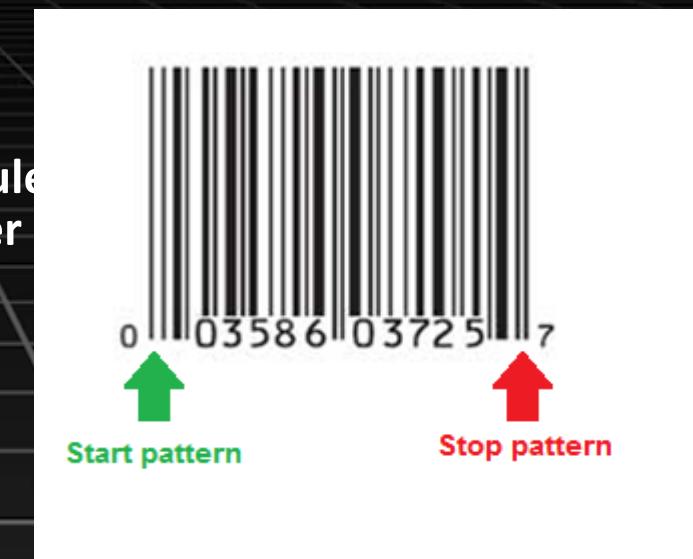
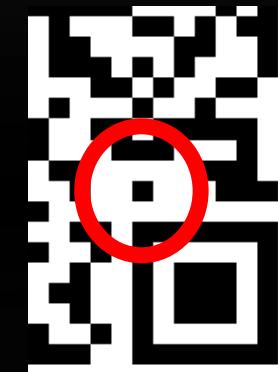
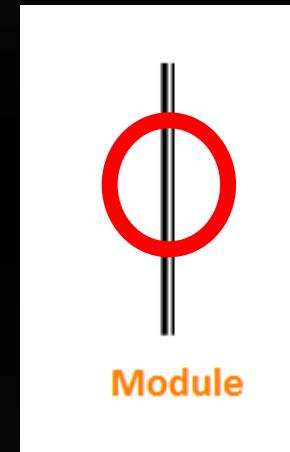
In 2D trained mode, more pixels per module may not help. It can slow down the reader

## Linear

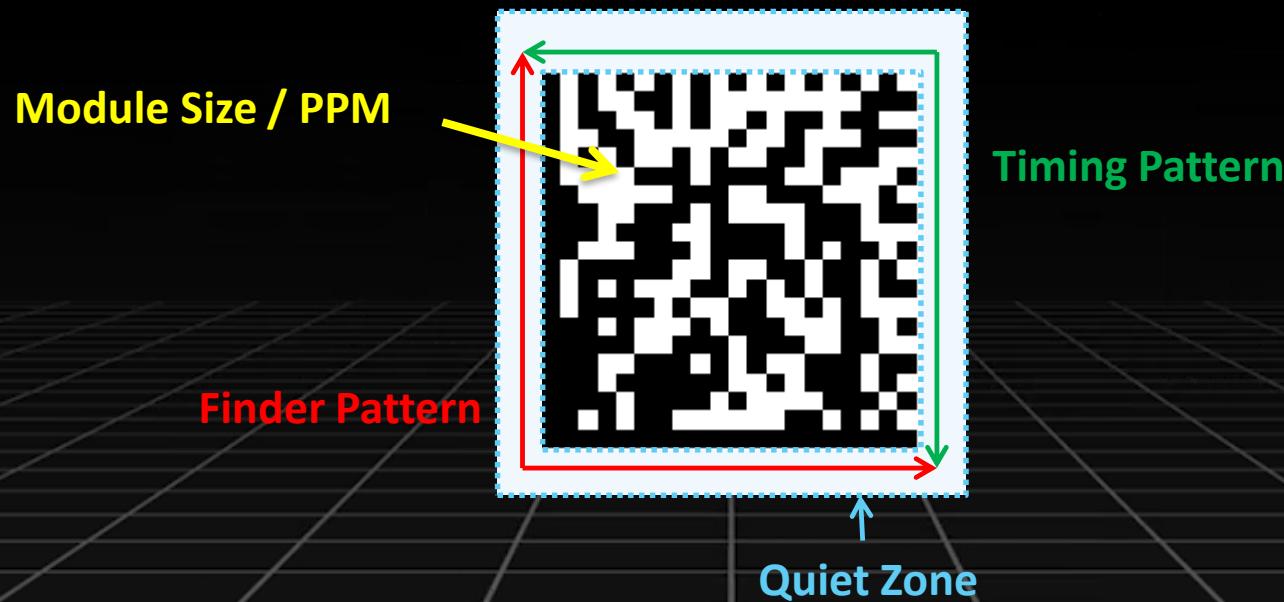
- Single dimensional—typical “barcodes”

## Start/Stop Pattern

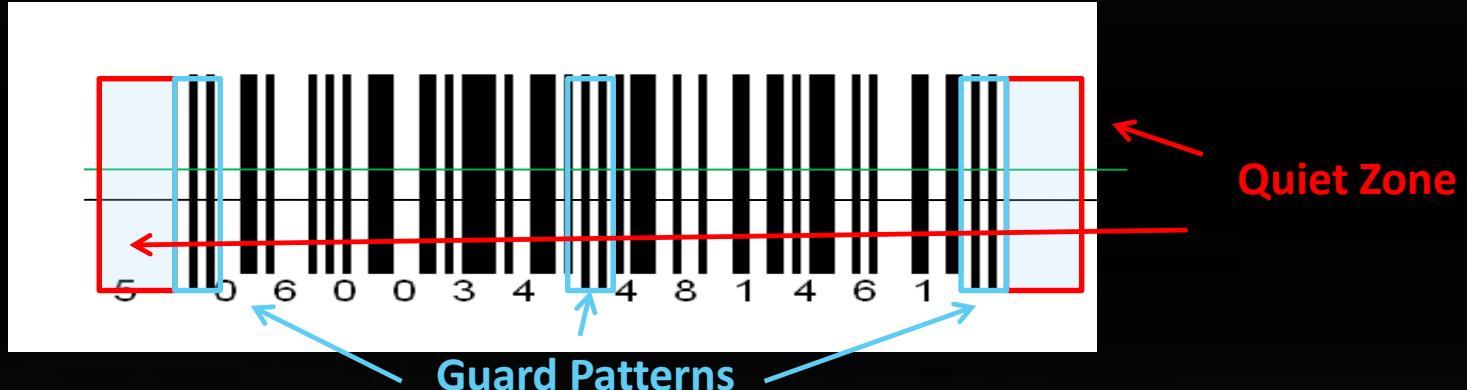
- Designates the beginning/end of code



# DataMatrix Terminology



# Linear Symbol: Terminology



## Module Size / PPM

- Size of Minimum Bar/Space in physical units/pixels

## Quiet Zone

## Guard Pattern (aka Start / Stop Pattern)

# Now, barcodes in Industry are ubiquitous

Automotive



Medical



Pharma

Defense



Food/Bev

Consumer Electronics

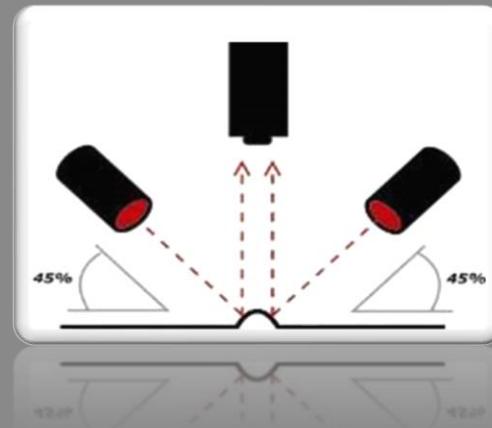
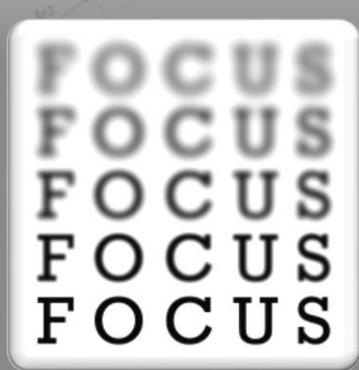
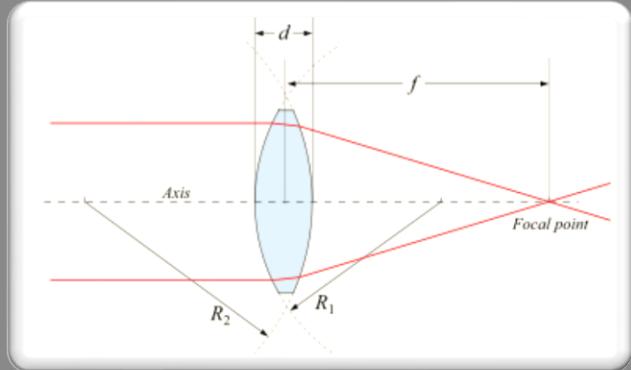


... And Logistics



# Image-based reading adds new elements

## Vision concepts!



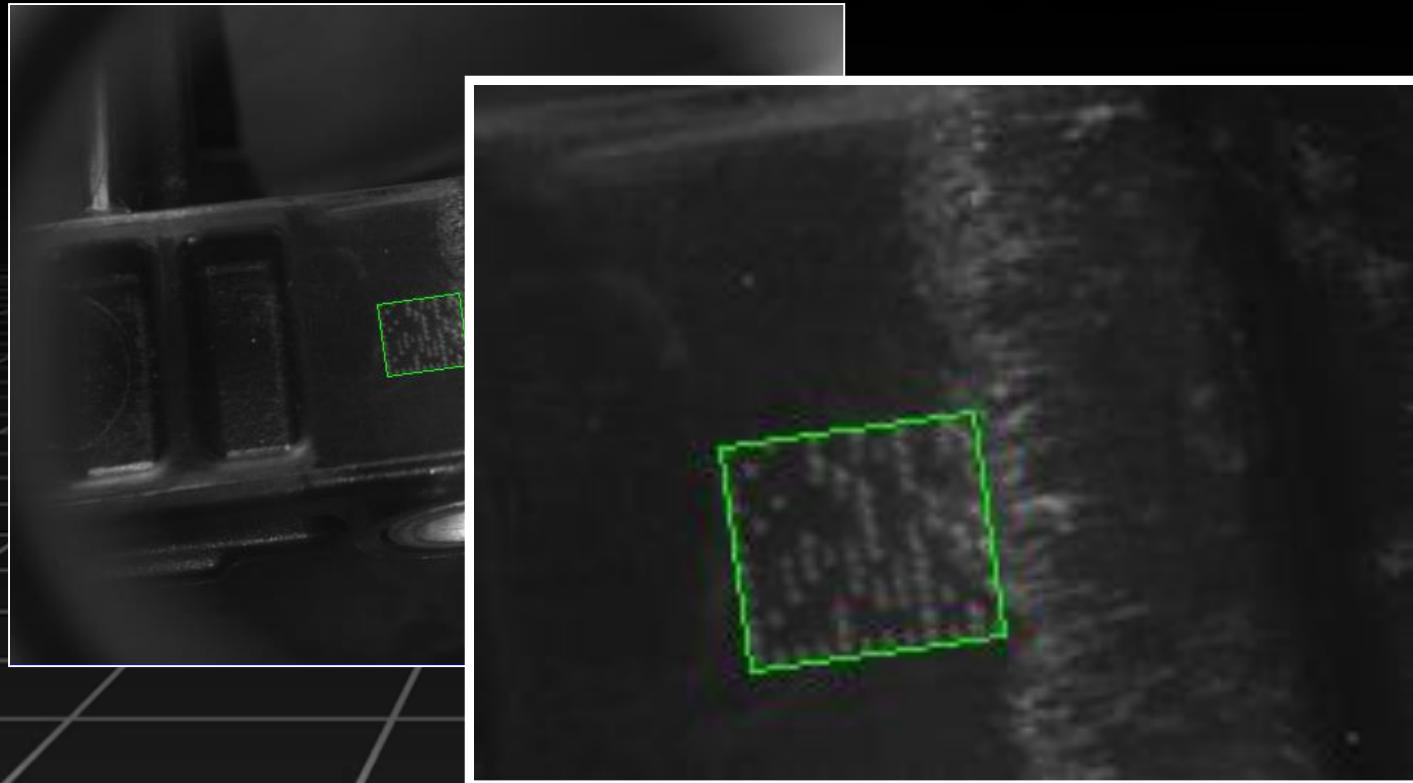
# COGNEX

The largest and most respected Machine Vision company in the world.



# How to get better rates

Better Software to read codes at a higher rate than thought possible



# 2DMax – Superior 2D Code Reading

**2DMax has set the standard for performance in Industrial ID**

**Reads the most challenging 2-D Direct Part Mark barcodes**

- Laser Marked
- Dot Peen
- Low Contrast
- Perspective
- Skew
- Damage
- Blur
- Non-Uniform Illumination

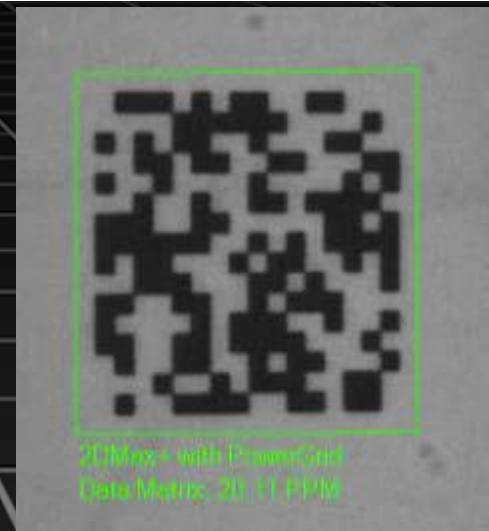
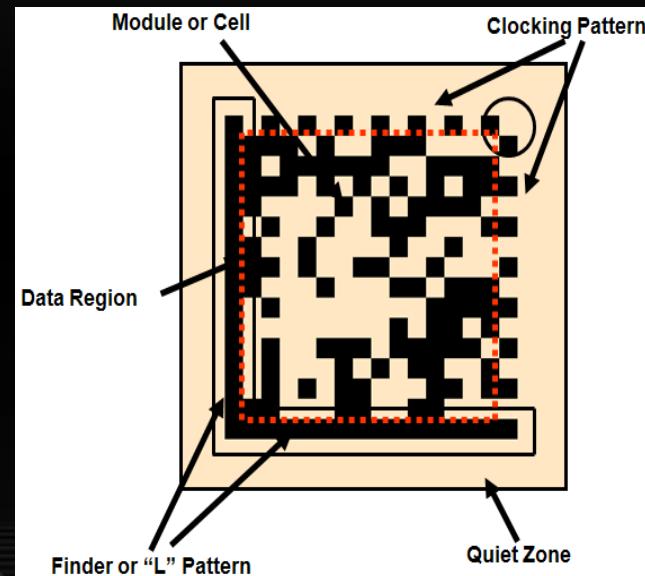


# PowerGrid™ : Setting the NEW Code Reading Standard!

PowerGrid (patent pending) is to 2DMax as HotBars is to 1DMax

Perfect codes don't always exist...

- 2DMax has done a great job with degraded codes
- What if...
  - Finder Pattern is occluded?
  - Timing Pattern is occluded?
  - There is no Quiet Zone?
- PowerGrid™ CAN READ IT!



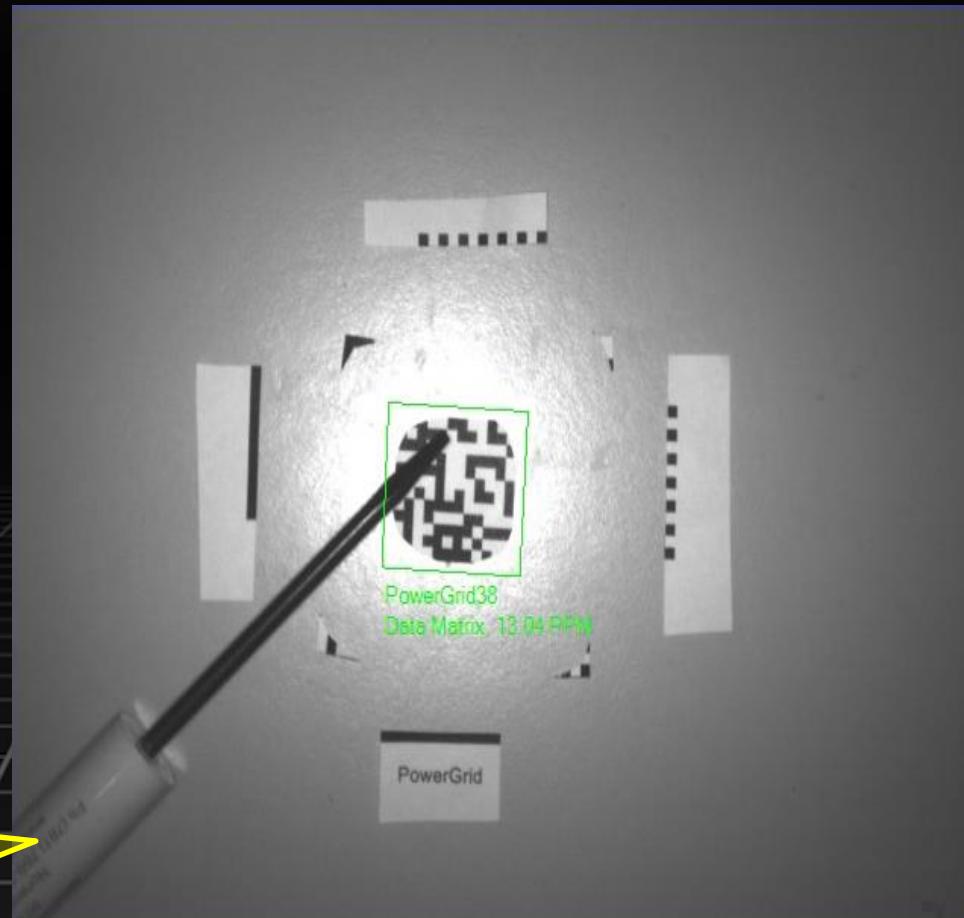
# PowerGrid Examples

- Clocking Pattern Missing...
- Finder Pattern Missing...
- Code Corner Damage...

**ALL AT ONCE**

PowerGrid

**FEAR NO  
CODE**



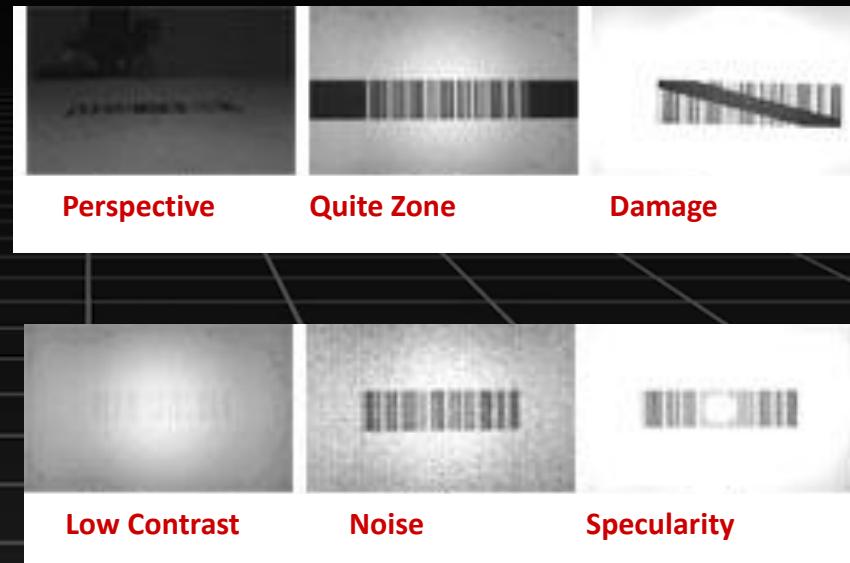
# High Speed Reading : 1DMax+ with Hotbars

1DMax+ with Hotbars™ delivers incredible speed and robustness of 1-D barcodes



Designed to read the most challenging 1-D barcodes

- Low contrast
- Blurred codes
- Quiet zone violations
- Damages / Voids
- Specularity
- Perspective distortion

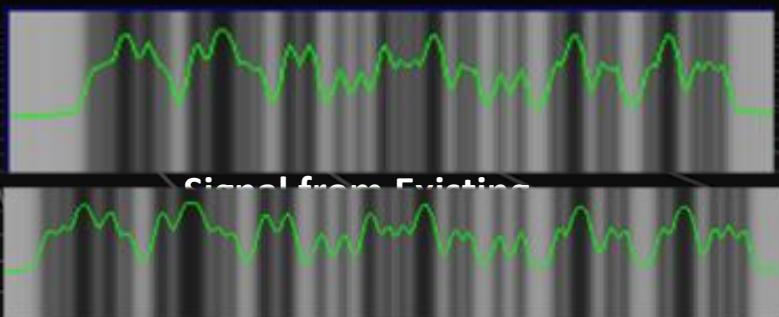
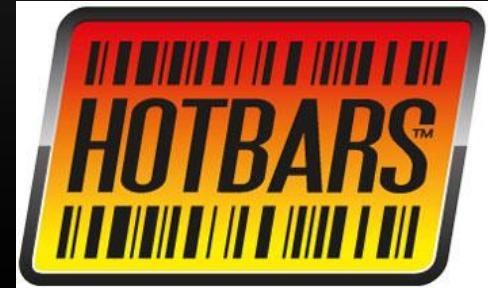


# Hotbars™ II Technology

## 1DMax™ with Hotbars™ II Technology for 1-D code reading

Ability to read 1-D codes with **0.8** pixel resolution – industry standard **1.3 - 1.6** pixels

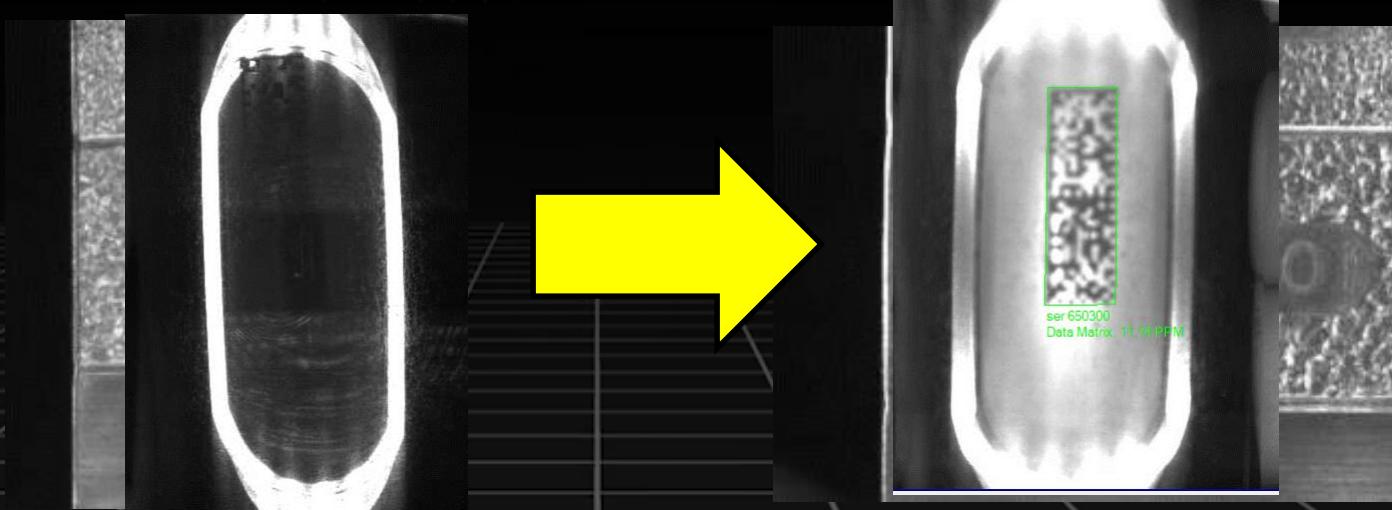
- 1-D Codes in any orientation
- Extracts high-resolution 1-D signals for decoding
- Superior signal fidelity with lightning speed, giving DataMan readers unprecedented performance



Signal from Hotbars → Higher Fidelity  
at 10x the Speed

# How to get better rates

Better lighting methods to bring out the contrast in difficult to read codes



# DM 8600 Best Image Formation with UltraLight

## Bright field illumination

- Labels and high contrast DPM

## Dark field illumination

- Dot peen and laser marked DPM

## Diffuse Off Axis illumination

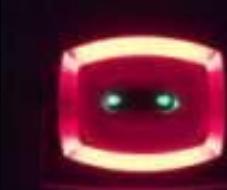
- Curved surfaces and highly reflective surfaces

## Quadrant control

- Directional surface texture



UltraLight provides the ability to illuminate marks on any type of surface

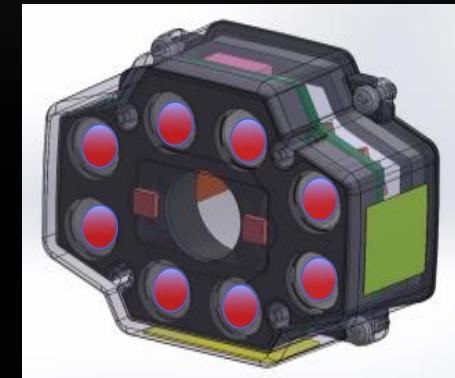


# H PIL – High Powered Integrated Light

## DM300 H PIL

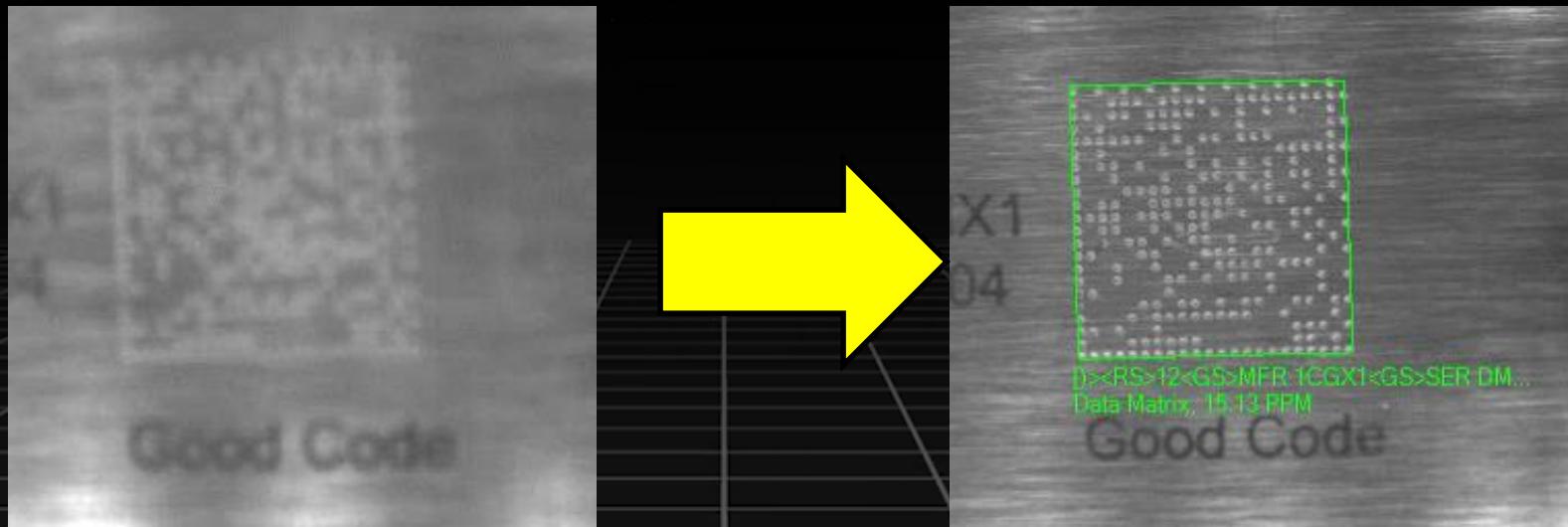
- High Powered Integrated Light
- Higher Intensity LEDs
- Polarized and Non-polarized
- Works with existing 19mm Liquid Lens

Ideal for Long Range Applications



# How to get better rates

Better focusing methods to sharpen contrast



# Best Image Formation with Liquid Lens

## Liquid Lens – Technology

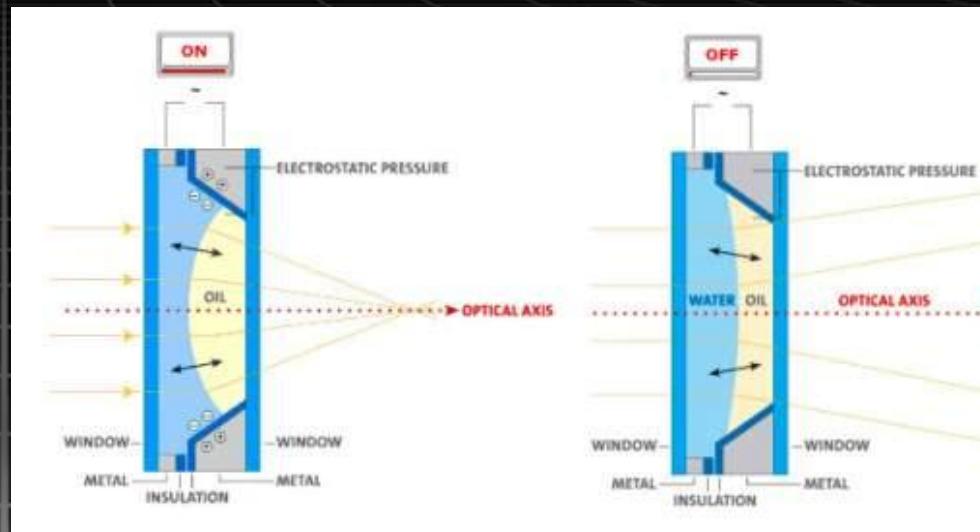
- Change focal distance in software
- Change voltage through the liquid lens to change curvature of the lens



Liquid Lens size

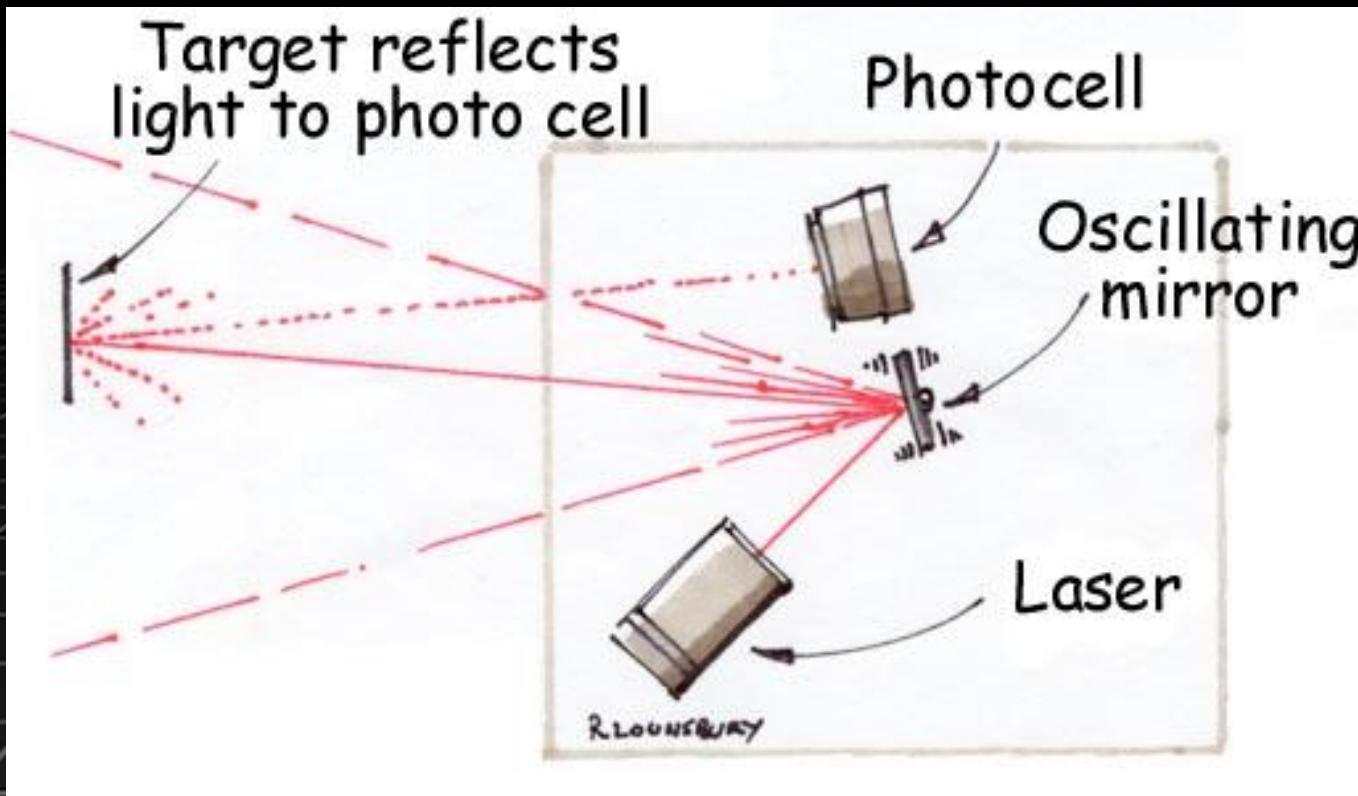
## Liquid Lens - Benefits

- Large focal length range (0mm - 500mm+)
- Rugged (No moving parts)
- Fast response



# How to get better rates

Eliminate Moving Parts that lead to failures with traditional laser readers



# Limitations of Laser Scanners

## Hard to scan barcodes

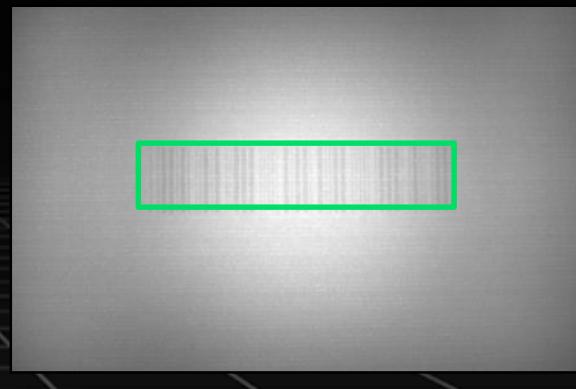
- Poorly printed
- Defective / damaged
- Low contrast
- Specular reflections
- Narrow-heighted

## Unidirectional scanning

- No omnidirectional (360°) or at least orthogonal (0° and 90°) reading
- Requires more expensive laser systems or combination of multiple lasers
- Mounting and positioning constraints

Moving parts are subject to failure

Cannot read 2D codes



# How to get better rates

Feedback to the process to indicate WHY the codes are not reading (code not there, on a seam, covered by sticker, etc)



Missing Label



Label Orientation



Folded Label

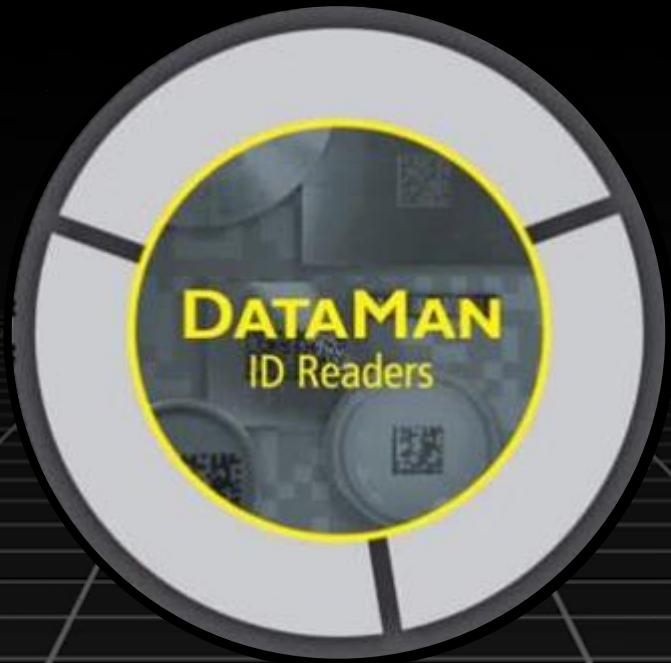


Sideways Tray



Unknown

# What are the three key advantages?



# DataMan



1DMax

with Hotbars II

2DMax with PowerGrid



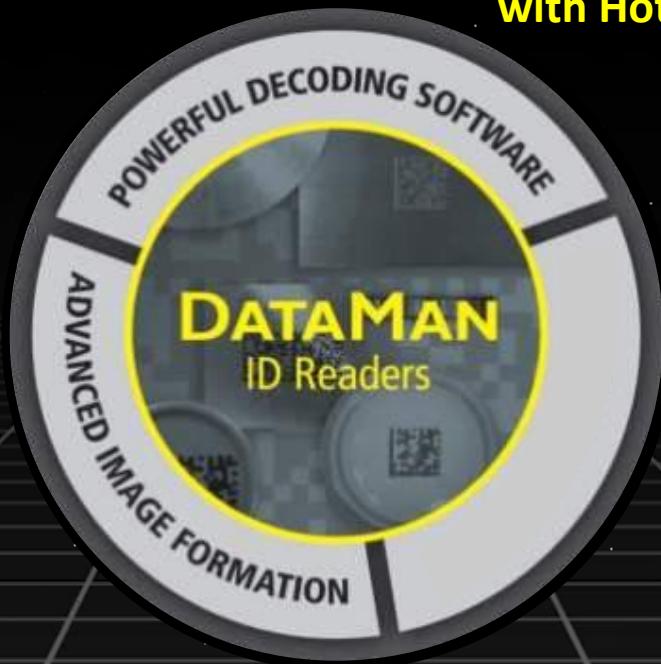
FEAR NO  
CODE

# DataMan



2DMax with PowerGrid

1DMax  
with Hotbars II



Modular Optics &  
Illumination



High Power,  
Compact Design



Ultralight

FEAR NO  
CODE

# DataMan



2DMax with PowerGrid



1DMax  
with Hotbars II



Modular Optics & Illumination



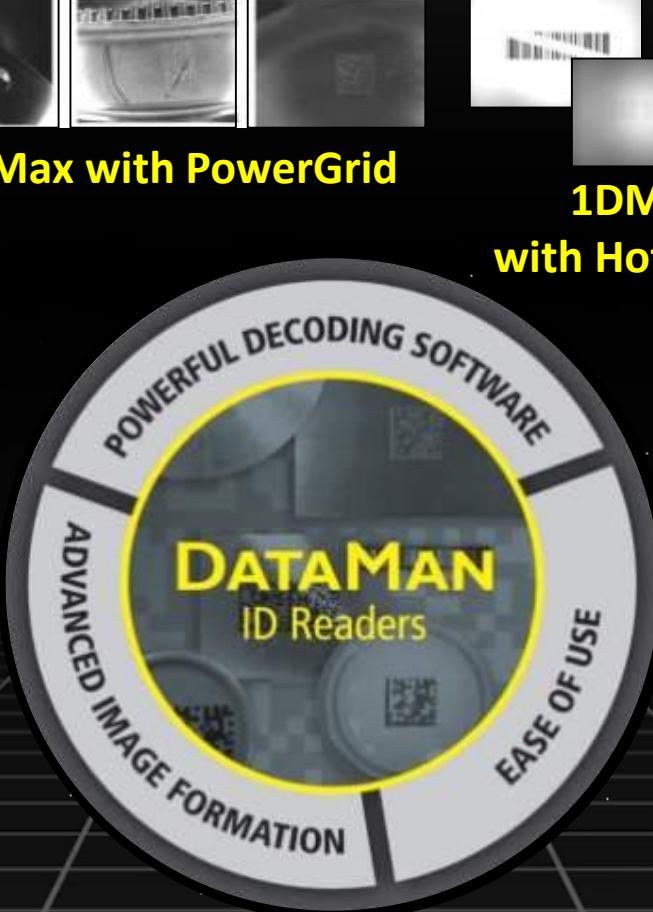
High Power,  
Compact Design



Ultralight

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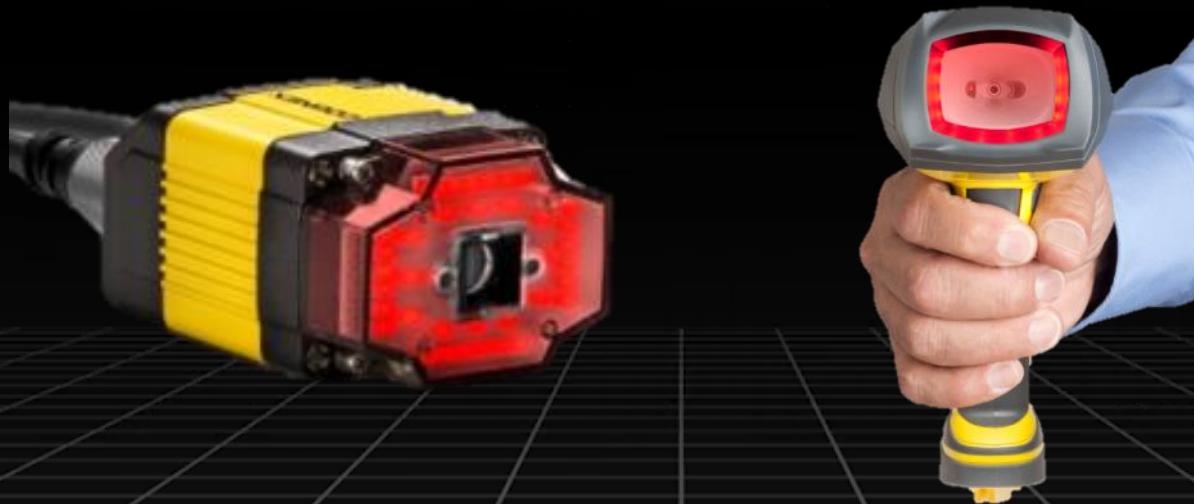


Intelligent Tuning



Industrial Protocols

COGNEX



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**COGNEX**

# DataMan 8000 Series Handheld ID Readers



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# Product Positioning: Handheld Readers 2017

High End



MX-1000

Mid-Range



DataMan 8600/8600HDX

Value



DataMan 8050X/8050HDX  
8050HDX ESD

DataMan 8050  
8050HD ESD

# DataMan 8000 Series

## DataMan 8600/8600HDX

- DPM reader with UltraLight
- Liquid Lens
- Tuning



## DataMan 8050X/8050HDX

- Well-marked DPM reader
- <7mil code size



## DataMan 8050

- High contrast 1-D and 2-D reader
- High speed reading performance



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CODE

# DataMan 8000 Series Readers

Variable working  
distance with Liquid  
Lens

Modular Communication  
Ethernet, RS-232,  
USB and Wireless



Best reading  
performance with  
superior algorithms

Rugged, industrial  
housing, IP65

# DataMan 8000 Series DELTAS (FA)

## Best Read Rates

- ...with patented industry leading decoding algorithms  
2DMax+™ and 1DMax+ with Hotbars™
- ...PowerGrid on the DM8600/HDX and 8050X/HDX!



## Advanced Image Formation

- ...with Liquid Lens technology for reading range versatility and UltraLight® for illumination on DPM surfaces

## Future Proof

- ...industrial handheld ID readers with field exchangeable communication modules for Ethernet, USB/RS-232 and Wireless

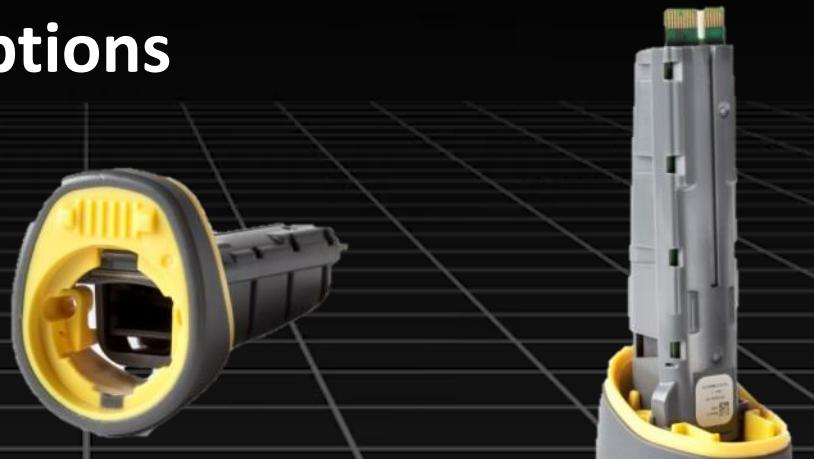
# Future Proof Exchangeable Communication Modules

Field exchangeable communication modules

Future-proof for communication requirement changes

Modular connectivity options

- Ethernet
- USB
- RS-232
- WiFi
- Bluetooth



# Multiple Communication Options

## Corded

- RS-232
- USB (USB COM, USK Keyboard and PS/2)
- Ethernet (including TCP/IP and FTP)
- Ethernet Industrial Protocols Ethernet/IP, Profinet, MCProtocol, ModBusTCP

## Wireless

- WiFi and Bluetooth
- DataMan 8000 Wireless connects Point to Point with Intelligent Base Station
- Intelligent Base Station supports RS-232, USB and Ethernet
- Ethernet Industrial Protocols Ethernet/IP, Profinet, MCProtocol, ModBusTCP

# MEET THE FAMILY

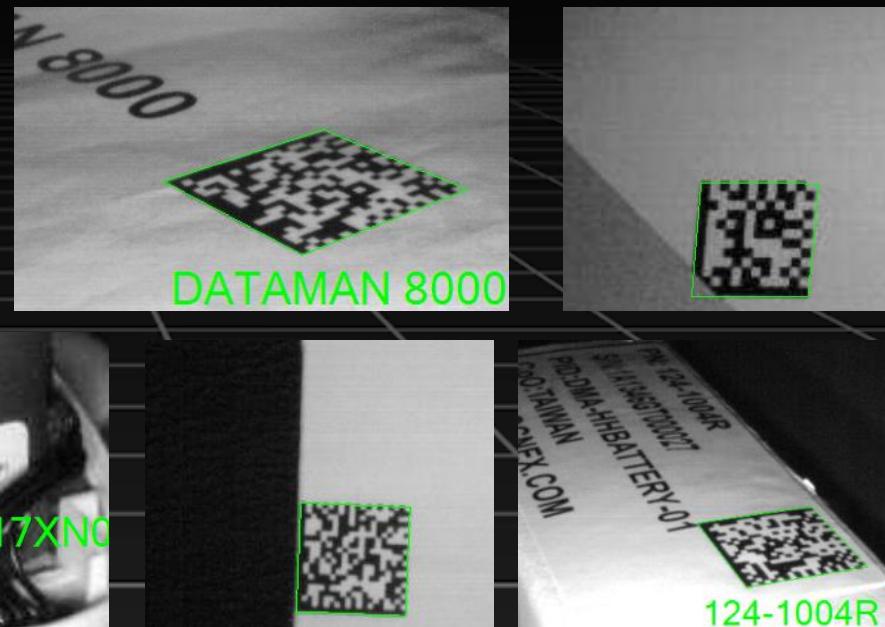


# 8050 Series High Speed Reading : 2-D Labels

**High contrast 2-D codes read quickly and easily**

**High speed 2-D algorithms read all types of 2-D barcodes even with:**

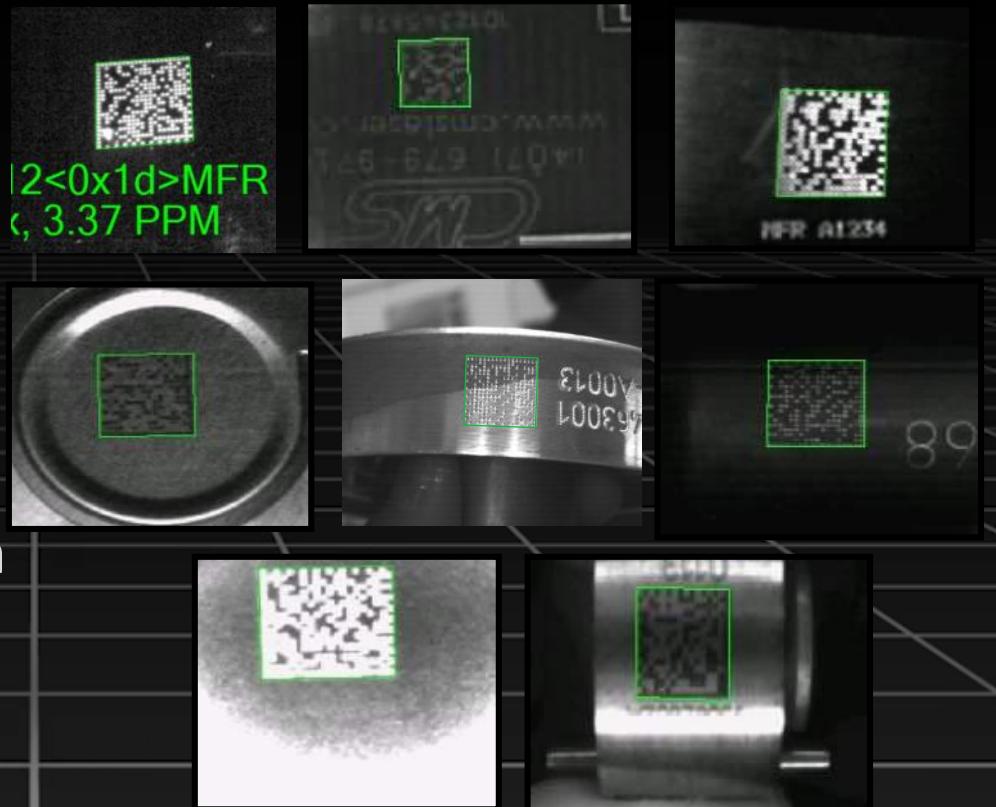
- Perspective distortion
- Quiet zone violations
- Blurred codes
- Low contrast
- Damage



# 8050X Reading : 2-D DPM

## Robust reading performance on 2-D DPM

- Dot Peen
- Laser Marked
- Low Contrast
- Perspective
- Skew
- Damage
- Blur
- Non-Uniform Illumination



# 8050HDX Reading : 2-D DPM

Focused on the electronic manufacturers and automotive electronics market.

## Higher Focal Distance lens (10.3mm)

- Smaller field of view and more pixels per module at the same working distance

## Smaller Aperture

## Reading Performance

- 5 mil DM codes at 50mm, +/-25mm
- 4 mil DM codes at 4mm, +/-10mm

## Applications

- Labels
- Laser mark on PCB
- DPM on components
- Dot Peen

DM8050HDX	DM8050X
Reading Distance: 2"	Reading Distance: 1.5"
PPM: 3.34	PPM: 1.80
	

# Summary of DataMan 8050 Series

## Reading Performance

- 8050X – Robust 2-D DPM reading
- 8050HDX - 4-mil and 5-mil DataMatrix codes at a 30mm-75mm working distance.
- 8050 – High Speed 1-D and 2-D labels

## Modular Design

- Interchangeable Communication Modules

## Industrial

- Ruggedized Industrial Design, IP65

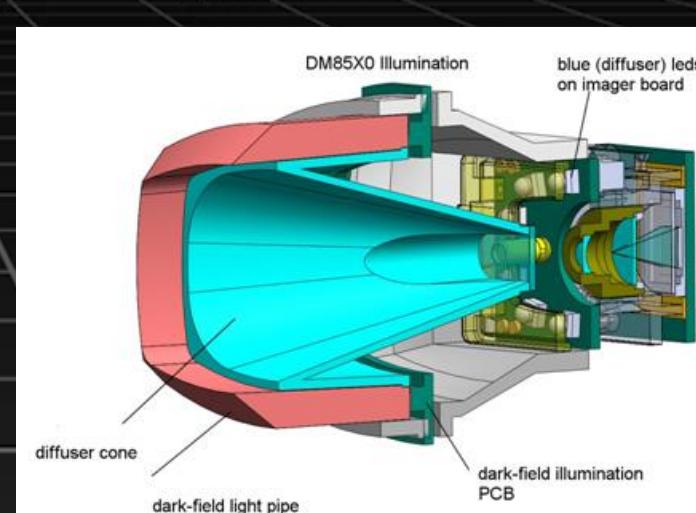


FEAR NO  
CODE

# DataMan 8600 Readers: For the most difficult DPM

## DataMan 8600 Readers include:

- PowerGrid™
  - No Quiet Zone
  - No Clocking Pattern
  - No Finder Pattern
- UltraLight: Lighting types for all mark types and surfaces
  - Bright field
  - Dark field
  - Diffuse/DOME Illumination
- Tuning
- Liquid Lens
- necessary for the most difficult DPM applications

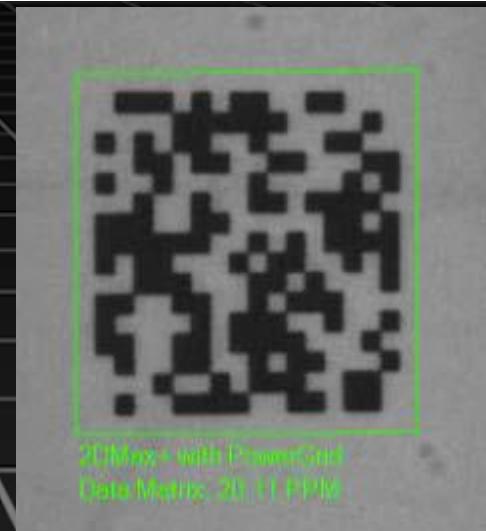
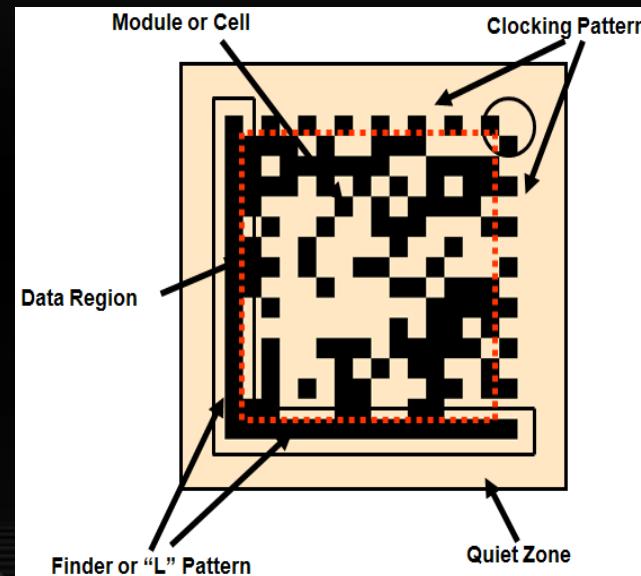


# PowerGrid™ : Setting the NEW Code Reading Standard!

PowerGrid (patent pending) is to 2DMax as HotBars is to 1DMax

Perfect codes don't always exist...

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- What if...
  - Finder Pattern is occluded?
  - Timing Pattern is occluded?
  - There is no Quiet Zone?
- PowerGrid™ CAN READ IT!



# Best Image Formation with UltraLight

## Bright field illumination

- Labels and high contrast DPM

## Dark field illumination

- Dot peen and laser marked DPM

## Diffuse Off Axis illumination

- Curved surfaces and highly reflective surfaces

## Quadrant control

- Directional surface texture

DataMan 8600



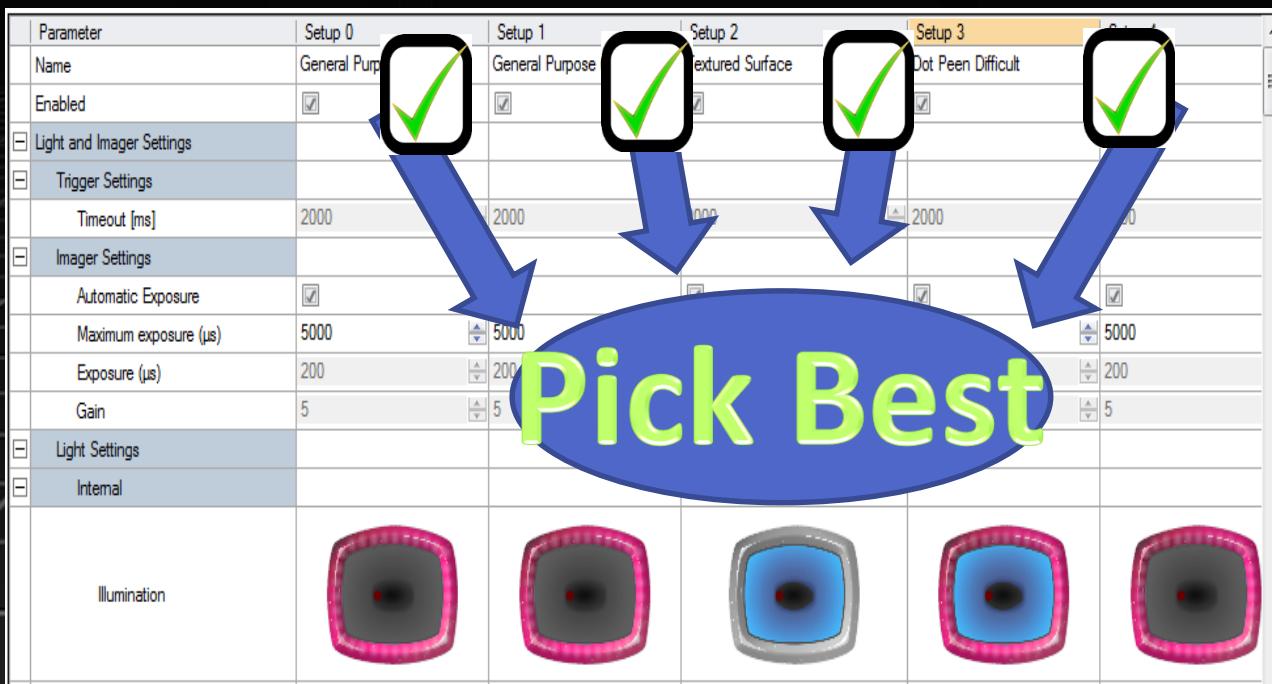
UltraLight provides the ability to illuminate marks on any type of surface

# Handheld Tuning

3 second tune button

Flashing green lights, ready for tuning

Trigger runs all enabled setups, and compares results

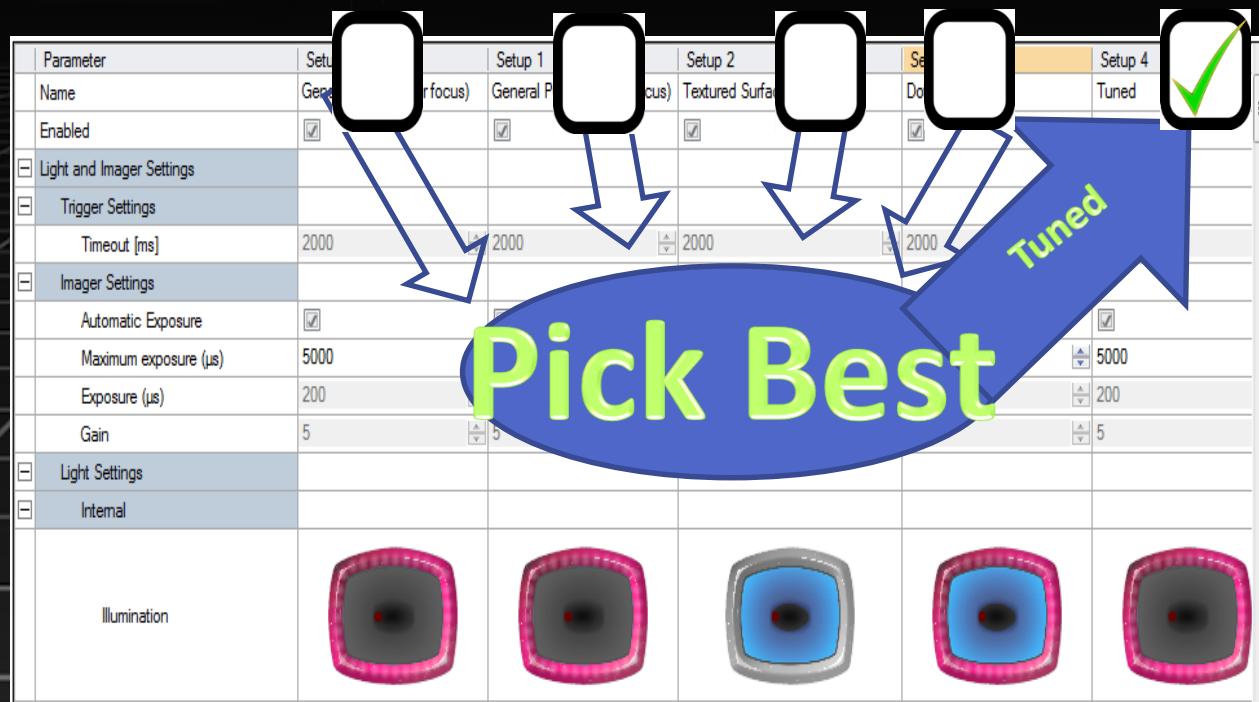


# Handheld Tuning, the new Magic Mode

3 second tune button

Flashing green lights, ready for tuning

Trigger runs all enabled setups, and compares results



# Best Image Formation with Liquid Lens

## Liquid Lens – Technology

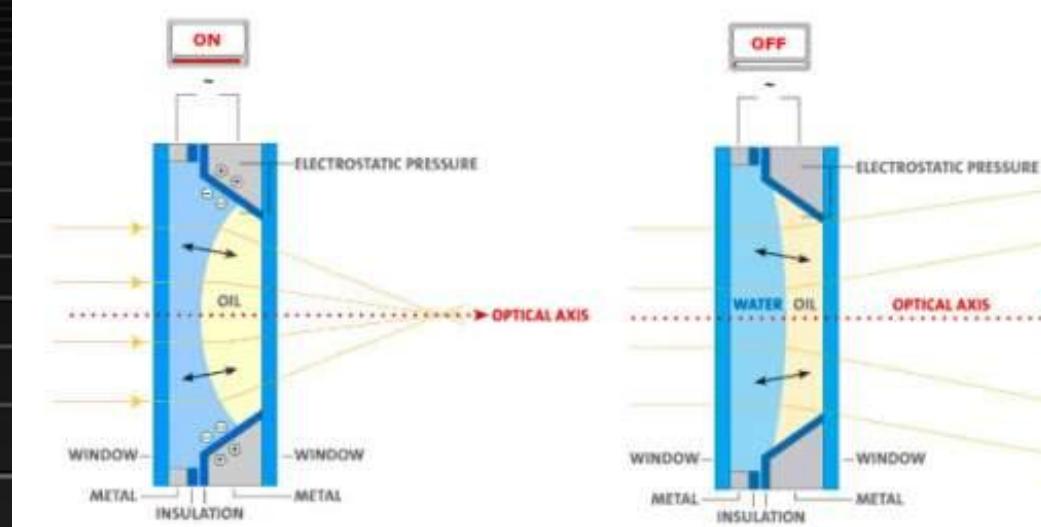
- Change focal distance in software
- Change voltage through the liquid lens to change curvature of the lens



Liquid Lens size

## Liquid Lens - Benefits

- Large focal length range
  - (0mm - 500mm+)
- Rugged (No moving parts)
- Fast response



# Product Positioning: Handheld Readers 2018



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# Hardware : Handhelds



DataMan 8050  
Series



DataMan 8600  
Series

	Challenging 2-D DPM Codes	2-D DPM Codes	Challenging 1-D/2-D Codes	Well Printed 1-D/2-D Codes	Wireless Bluetooth and Wi-Fi
DataMan 8600	■	■	■	■	■
DataMan 8050X		■	■	■	■
DataMan 8050			■	■	■

Information from the DataMan Product Guide located on the:

<http://www.cognex.com/search/TabSearch.aspx?srch=product%20guide>

Cognex. com website → Support Tab → DataMan Support

# Product Positioning: Handheld Readers

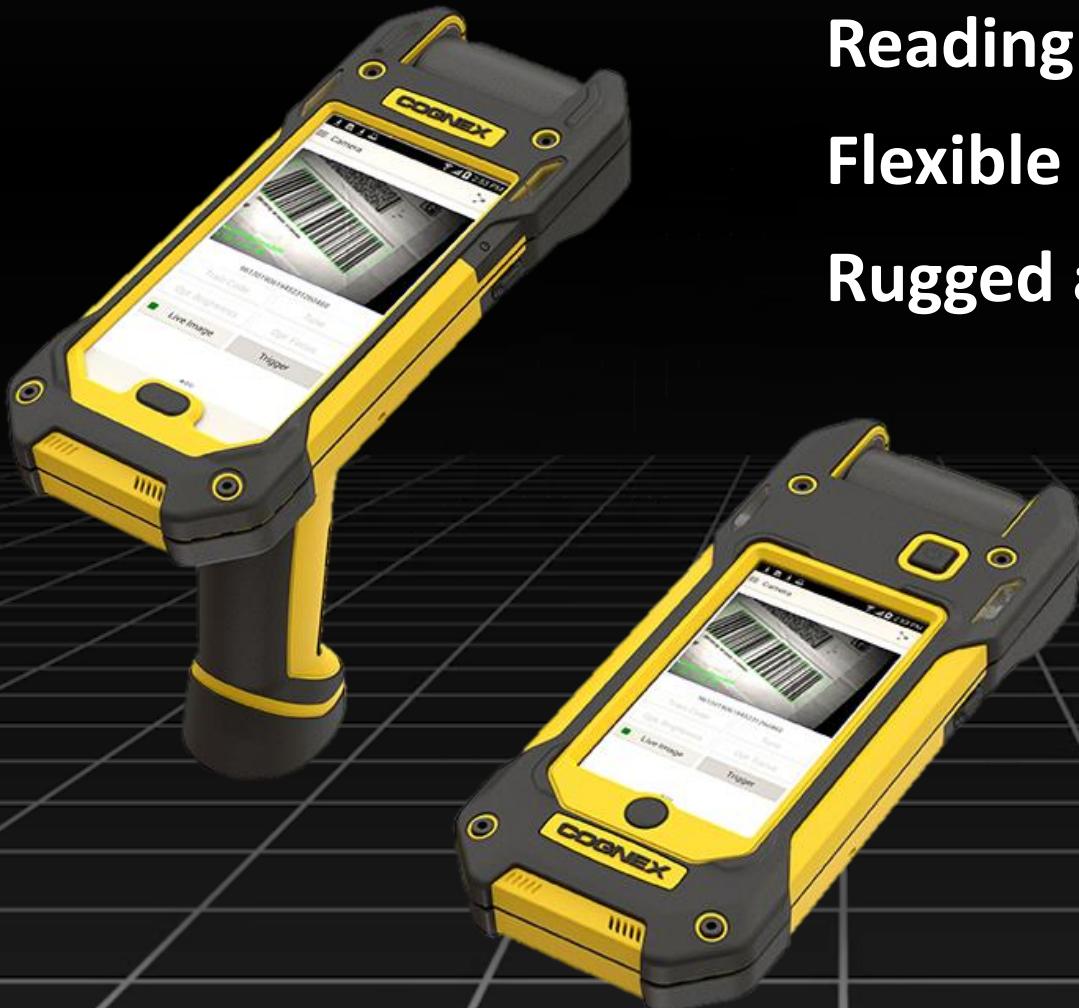
**8600/HDX** - THE best DPM reading capability with  
adjustable lighting, optics and high resolution sensor

**8050X/8050HDX** – for reading well-marked laser  
and dot peen codes like a label reader

**8050** – for high speed 1-D and 2-D labels easier and at more  
angles

# MX-1000 Vision-Enabled Mobile Terminal

Reading performance  
Flexible modular design  
Rugged and industrial



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# MX-1000 Vision-Enabled Mobile Terminal

Mobile device  
+  
Cognex barcode  
reading technology  
=  
The first modular,  
rugged mobile  
computer



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**CODE**

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# Industries and Applications



Couriers and Parcel Delivery



Field Service and Utilities



Logistics and Transportation



Pharmaceutical

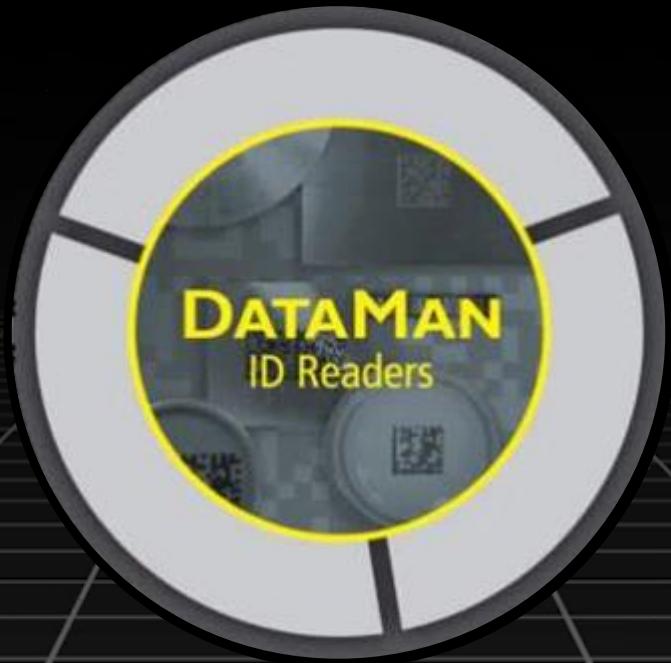


Tobacco and Alcohol



Automotive and Manufacturing

# What are the three key advantages?



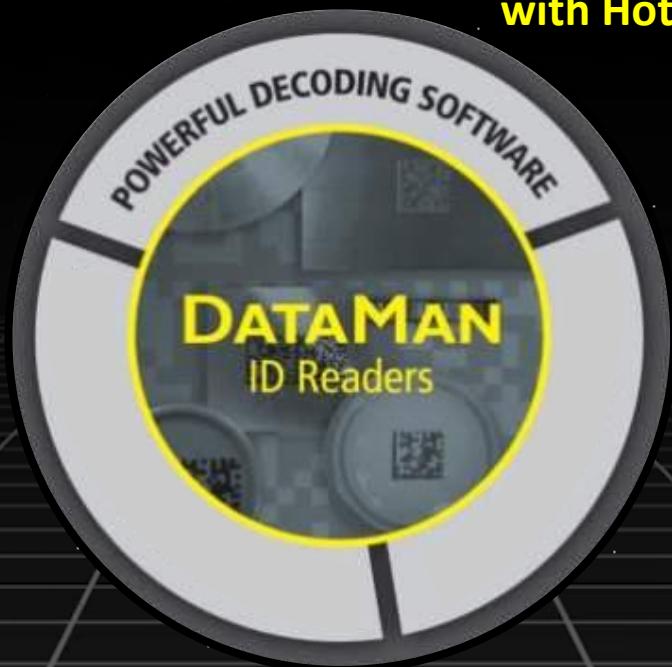
# DataMan



1DMax

with Hotbars II

2DMax with PowerGrid



FEAR NO  
CODE

# DataMan



2DMax with PowerGrid

1DMax  
with Hotbars II



Modular Optics &  
Illumination



High Power,  
Compact Design



Ultralight

FEAR NO  
CODE

# DataMan



2DMax with PowerGrid



1DMax  
with Hotbars II



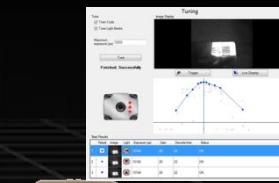
Modular Optics &  
Illumination



High Power,  
Compact Design



Ultralight



Intelligent Tuning



Industrial Protocols

FEAR NO  
CODE

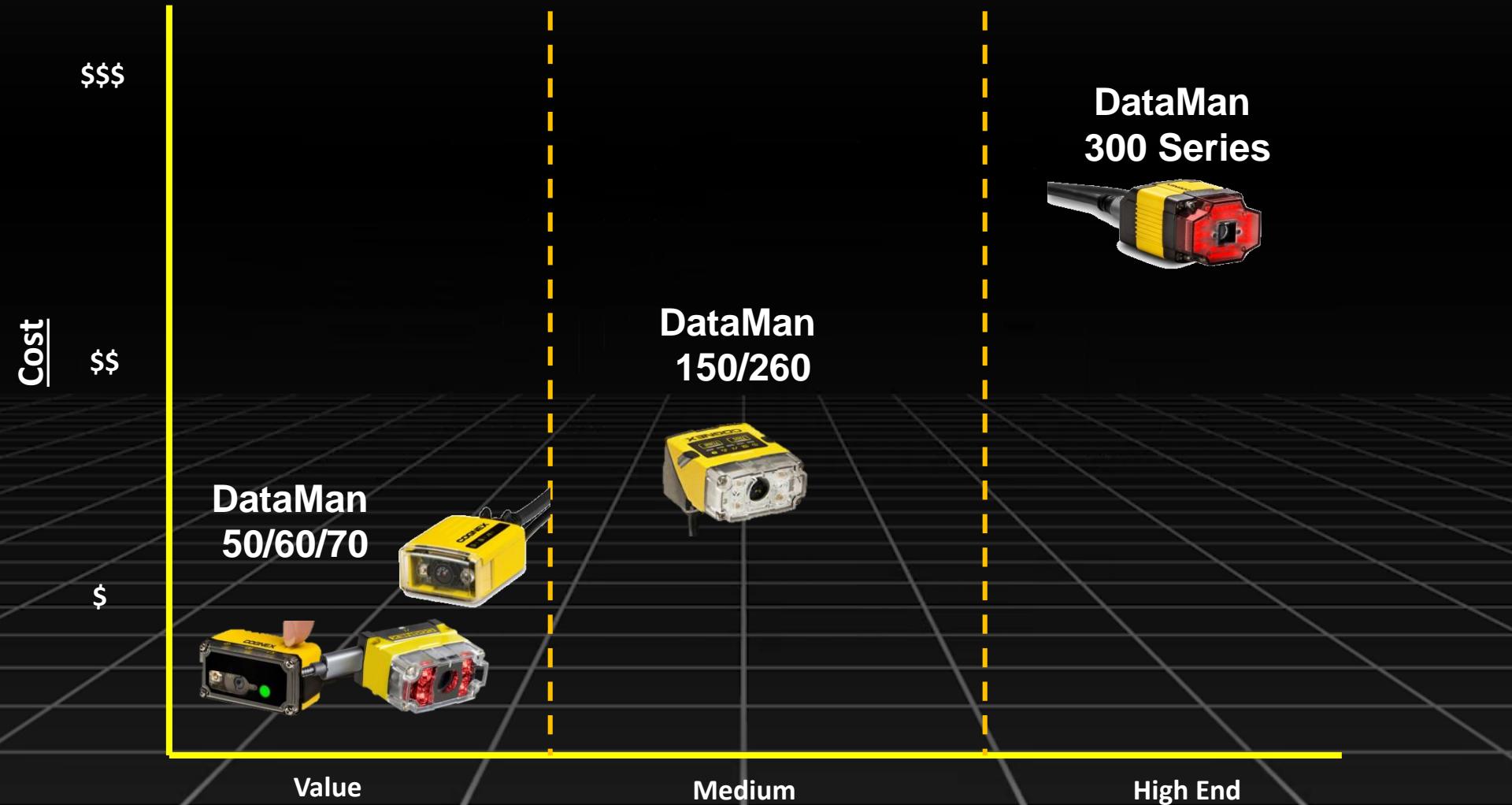
# DataMan Factory Automation Fixed Mount Readers



FEAR NO  
**CODE**

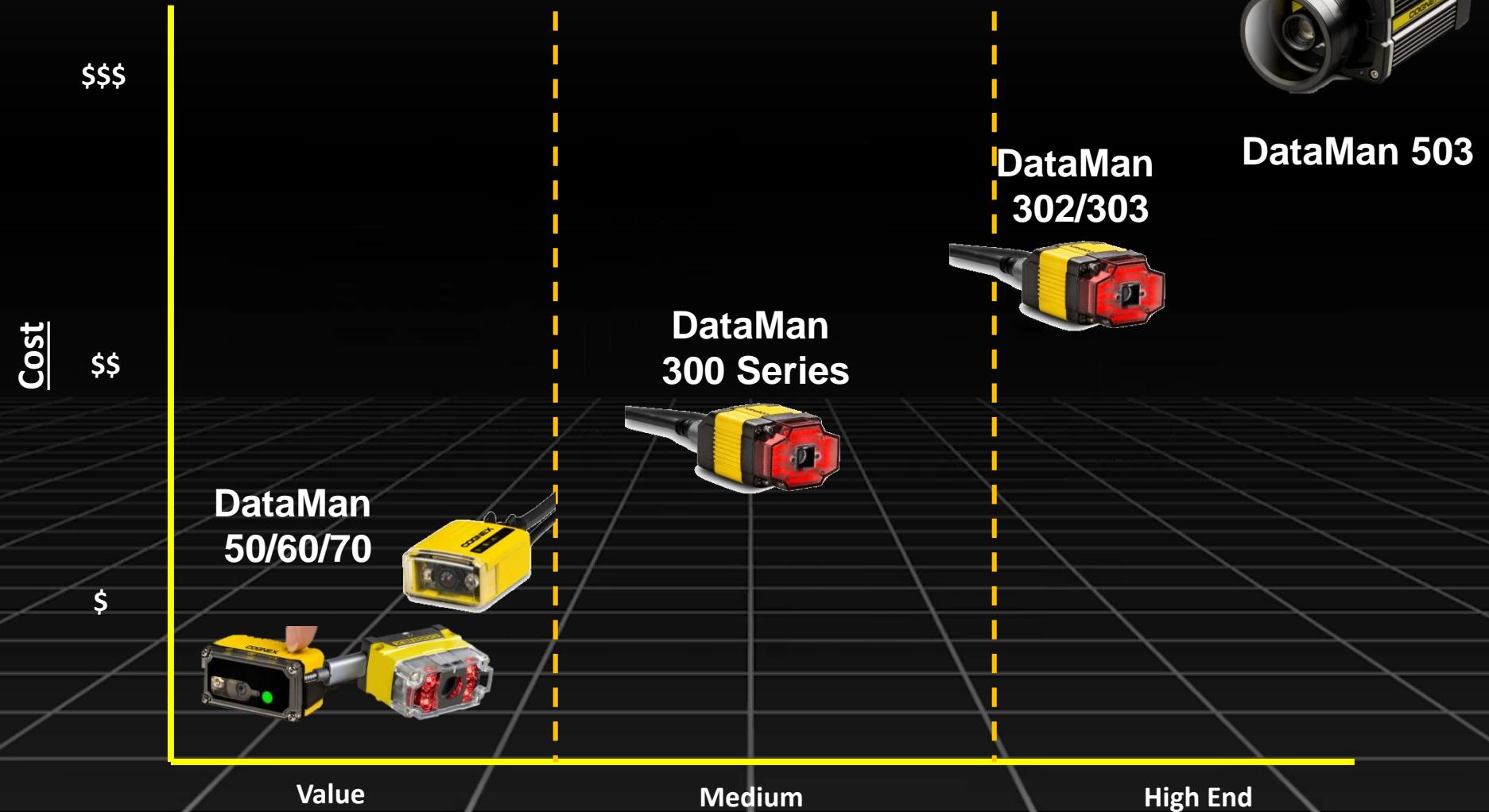
**COGNEX**

# Factory Automation 2-D Reading



FEAR NO  
CODE

# Logistics 1-D Reading



FEAR NO  
CODE

# DataMan 50 / 60

## The smallest image-based reader

- Best in Class 1-D and 2-D reading
- Smallest high performance fixed-mount ID reader
- Durable, solid state design



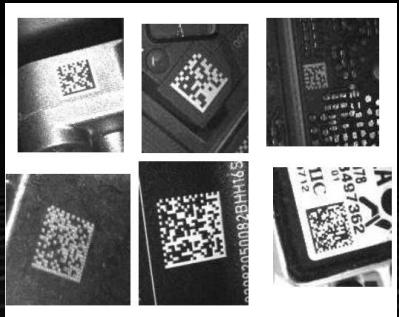
## Features:

- DataMan 50: USB & RS-232
- DataMan 60: USB, RS-232 and Ethernet
- 752 x 480 resolution
- Adjustable 3-position lens for different working distances

# DataMan 50 / 60

## DataMan 50/60 S

- Improved IDQuick for best in class 2-D reading
- 5 decodes/sec



## DataMan 50/60 L

- 1DMax+ with Hotbars best in class 1-D barcode reading
- For oriented (ladder or picket fence) high speed 1-D barcode reading



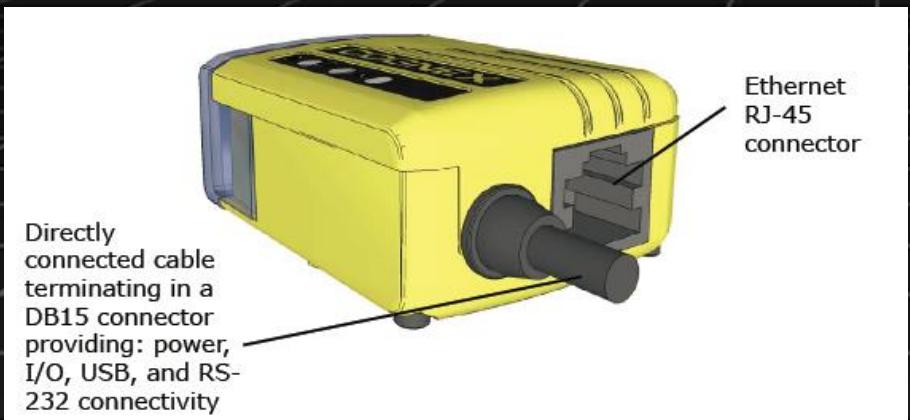
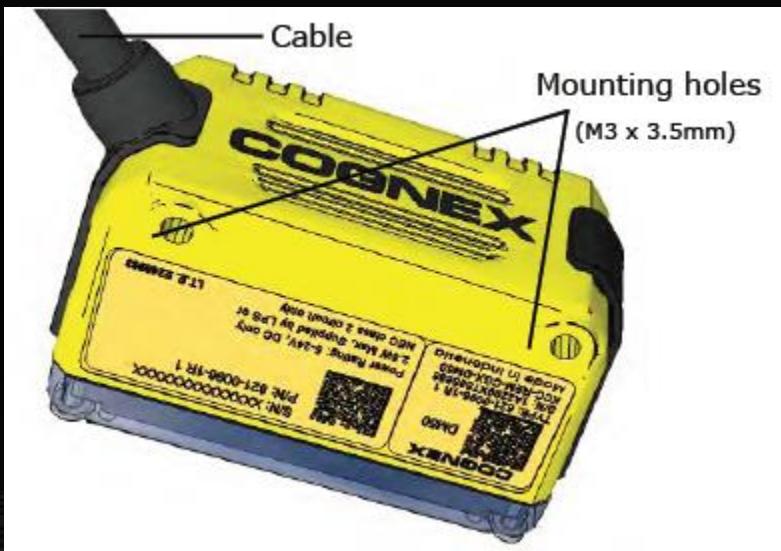
## DataMan 50/60 QL

- 1DMax+ with Hotbars best in class 1-D barcode reading
- Omni-directional 1-D barcode reading



FEAR NO  
CODE

# DataMan 50 / 60



	50	60
Communication	RS232, USB	RS232, USB, Ethernet
PoE	No	No
Resolution	752x480	752x480
Lens	Fixed Adjustable	Fixed Adjustable
Lighting	2 LEDs	2 LEDs
Protection	IP65	IP40 (E-Net)
I/O	2in/3out	2in/3out
Decode rate	45/sec: L/QL 5/sec: S	45/sec: L/QL 5/sec: S
Acquisition	60 fps	60 fps

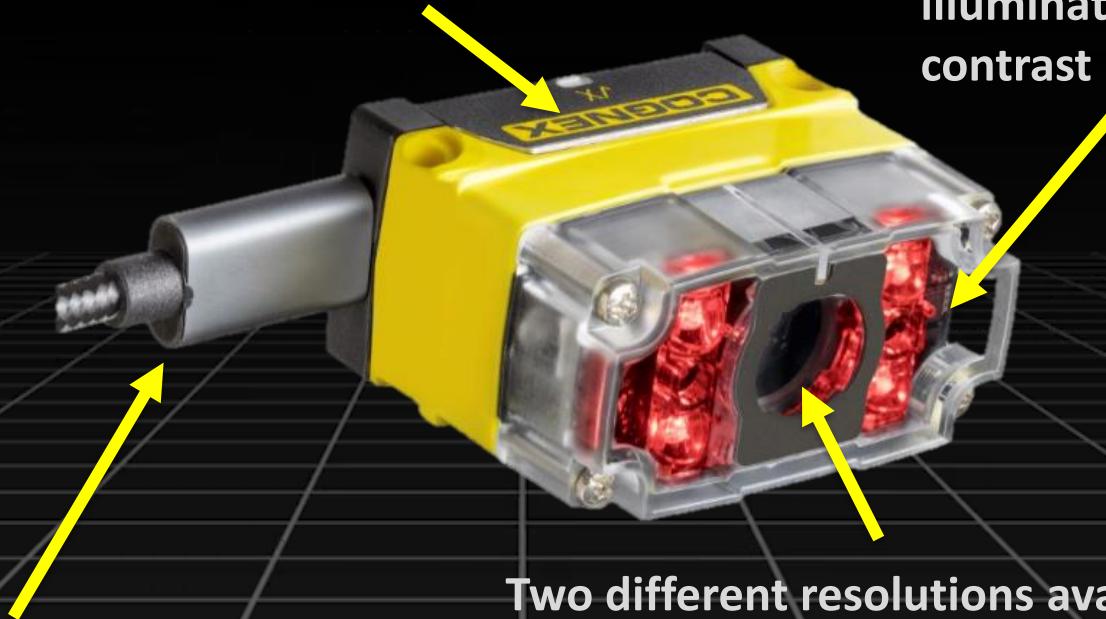
# DM70/72 Key Features

Small form factor measuring just

22.2mm (H) x 35.8mm (L) x 42.4 (W)

- IP40 rated, IP65 with cable restraint accessory
- Models with ESD-safe front cover

Advanced lighting and optics create evenly-illuminated, high contrast images



Integrated USB-C supports USB 2.0 high speed data transfer

Optional serial accessory cable  
for RS-232

Two different resolutions available  
6.2mm F7 with short or long range  
manual focus lens  
16mm manual focus

**FEAR NO  
CODE**

# DataMan 70/72

## Reliably reads 1-D and 2-D Codes

- **1DMax with IDQuick and Hotbars algorithms read 1-D and 2-D label-based barcodes fast and reliably**

## Fits into Small Application Spaces

- **DataMan 70 is small enough to fit in the palm of your hand. Its compact design and flexibility eliminates the need for equipment redesign, or complicated optical paths with mirrors**

## Advanced Image Formation

- **Flexible configuration options and powerful LEDs and optics create evenly-illuminated, high contrast images for short or long distance code reading, large depth-of-field, and slow-moving or high speed applications**

# DM70 Specification

Model	70S	70L	70QL	70Q	72S	72L	72QL	72Q						
1-D and Stacked Codes	X	X	X	X	X	X	X	X						
Omnidirectional 1-D Codes	X		X	X	X		X	X						
Label-based 2-D Codes	X			X	X			X						
Slow-Speed	X				X									
Full-Speed		X	X	X		X	X	X						
Algorithms	1DMax w/ HotBars													
Image Resolution	752 x 480 Global shutter		1280 x 960 Global Shutter											
Image Sensor	1/3" CMOS													
Acquisition	60 fps													
Decode Rate	2/Sec	45/Sec		2/Sec	45/Sec									
Aimer	2 Green LEDs													
Lens Options	6.2mm f 7.0, 3 position lens with Standard or Long Range focus setting by model, 16mm manual focus													
Lighting	4 Independently Controlled Red LEDs													
Discrete Input/output	USB- N/A Optional Serial accessory cable allows 1IN / 1OUT													
Status Output	Status LED on reader indicates: Green- Good read Or Red-No read													
Power	5 - 26 VDC, 2.5W (USB)													
Communication	Integrated USB-C (RS-232 with accessory cable)													
Dimensions	42.4mm x 22.2 mm x 35.8 mm													
Operating Temperature	0°C - 40°C													
Protection	IP40													

## Models

- **DataMan ® 70S: 1-D & 2-D Reading**
  - 1DMax+™ with Hotbars™
  - Slow-Speed
  - 2 decodes per second
- **DataMan ® 70L: 1-D Reading**
  - 1DMax+ with Hotbars™
  - Ladder OR Picket
  - Up to 45 decodes per second.
- **DataMan ® 70QL: 1-D Reading**
  - 1DMax+™ with Hotbars™
  - Omnidirectional, Up to 45 decodes per second
- **DataMan ® 70Q: 1-D & 2-D Reading**
  - 1DMax+™ with Hotbars™
  - Up to 45 decodes per second

FEAR NO  
CODE

# DataMan 150/260

## Performance

- **2DMax with PowerGrid™**
- **1DMax with HotBars2™**
- Best-in-class Reading of 2-D DPM and 1-D Barcodes

## Image Formation

- DataMan 150/152 – USB/Serial Based
- DataMan 260/262 – Ethernet Based
  - 752 x 480 pixels or 1280 x 960 pixels
- Flexible Lighting & Optics
- Autofocus or 3-position Lens

## Ease of Use

- Intelligent Tuning
- Quick Setup
- Trigger and Tune Buttons
- Straight and Right-angle Mounting



# DataMan 150/260 Image Formation

## Modular/Field Configurable Lensing

- Std 6.2mm Manual Lens
- 16mm SHD
- Liquid Lens Option for 6.2mm and 16mm



## Modular/Field Configurable Lighting

- 4 LEDs (Brighter/better coverage than DM100/200)
  - Red, White, Blue, IR
  - Band-Pass Filters & Polarizing Filter Available



# Ease of Use - Configurable Reader

## Straight or Right Angle Configuration

- Able to fit into smaller footprints
- No need to change the machine design
- No need for complicated mirrored optical path
- Size Does Matter...



# Ease of Use: Tuning, Trigger and Status LEDs

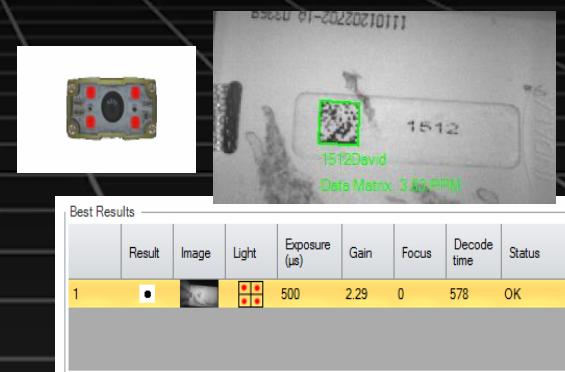
## Trigger and Tune Buttons

- Single button press
- TUNE
  - Optimize image brightness, LEDs, focus (liquid lens option) and train code
- TRIGGER
  - Use to initiate acquisition.



## 5 Status LEDs

- Power
- Communication
- Good/Bad Read
- Network Status
- Error

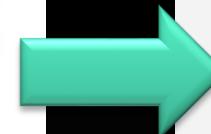


No PC Needed in Production!

# Ease of Use – DM100/200 Retrofits

## Easy to Retrofit

- Compatible Pinout
- Compatible Mounting
- Compatible Optics & FOVs



# Features of BOTH models (150/260)

## Models Available

- QL, S, Q and X

## Configurable Mounting

- 0° and 90° mounting options

## Resolution

- 752 x 480 or
- 1280 x 960 pixels

## Lens Options

- 6.2mm and 16mm lenses, 3-position (40/65/105mm) or Liquid Lens auto-focus

## Four Separately Controllable High Power LEDs

## Various Light Colors

- Red, red polarized, white, blue, IR

## Install Option for Optical Filters

## Trigger and Tune button

- Plus 5 status LEDs

## Green LED aimer

## IP65 Rating

# Compare the families

## DataMan 150 Series

### Power Supply

- 5–26 VDC, 2.5W (USB bus power option)
- DB-15 pig tail cable, pin compatible to DM100

### RS-232 and USB Interface

### 2 Digital Inputs, 2 Digital Outputs

- 2 Digital Inputs, 2 Digital Outputs

## DataMan 260 Series

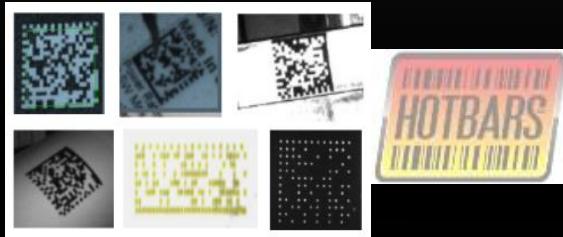
### Power Supply

- Two models with 24V or PoE
- Retrofit adapter for DM200

### RS-232 and Ethernet Interface

### 2 Digital Inputs, 4 Digital Outputs

# DataMan 360 Series



2DMax with PowerGrid™  
1DMax with HotBars™



Powerful DM300 Engine



Switchable I/O



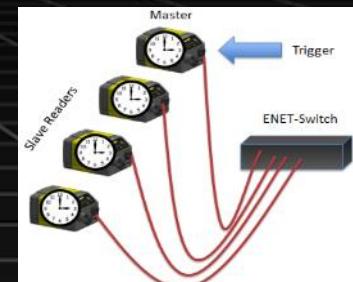
Most Enhanced Flexible  
Optics & Lighting



Indicator  
Light Ring



Micro SD Card



Synchronized  
Triggering

FEAR NO  
CODE

COGNEX

# DataMan 360 Readers

## Lead Product Configurations – Ship Assembled with Light and Lens

	Part Number	Resolution	Lens / Light	Algorithms
Mid-Range	DMR-360Q-MAX	800 x 600		Hotbars II 2D Max+
	DMR-362Q-MAX	1280 x 1024		
	DMR-363Q-MAX	1600 x 1200		
High-Performance	DMR-360X-MAX	752 x 480		Hotbars II 2D Max+ w/ PowerGrid
	DMR-362X-MAX	1280 x 1024		
	DMR-363X-MAX	1600 x 1200		

FEAR NO  
CODE

# Ease of Use: Installation, Set Up and Monitoring

## Separate Trigger and Tune Buttons

- Tune – Optimize brightness, lighting, focus and decoding

## 5 Status LEDs

- Power
- Communication
- Good Read
- Network Status
- I/O Status

## LED Bar

- Yield

The image shows the physical camera hardware on the left and its corresponding software interface on the right. The software interface includes:

- A top panel with 'TRIG' and 'TUNE' buttons and five status LEDs.
- A 'Tune' section with checkboxes for 'Train Code' and 'Tune Light Banks', and a 'Maximum exposure (μs)' input field set to 13333.
- A 'Finished, Successfully' message.
- An 'Image Display' showing a barcode image.
- A graph titled 'Tuning' showing a bell-shaped curve with a peak at approximately 13333.
- A camera icon.
- A 'Best Results' table with three entries:

Result	Image	Light	Exposure (μs)	Gain	Decode time	Status
1	[Image Icon]	[Light Icon]	13334	20	22	OK
2	[Image Icon]	[Light Icon]	13334	20	23	OK
3	[Image Icon]	[Light Icon]	13334	20	22	OK

# Flexible Lighting and Optics

- 8 independent lighting banks
- Supports M12 (S-mount), Liquid Lens and C-mount lenses



# DataMan 360 DELTAS

## Factory Automation: (against other image-based readers)

- Best read rates/ Reading performance/ Algorithms
- Flexible Lighting and Optics
- Ease of use/ Intelligent Tuning



## Logistics: (against Laser Readers)

- Best read rates/ Reading performance/ Algorithms
- Reliability (No moving Parts)
- Image Feedback



# Model Comparison

	<b>50</b>	<b>60</b>	<b>70</b>	<b>150</b>	<b>260</b>	<b>360</b>	<b>503</b>
<b>Communication</b>	RS232, USB	RS232, USB, Ethernet	RS232, USB	RS232, USB	RS232 Ethernet	RS232 Ethernet	RS232 Ethernet
<b>PoE</b>	No			No	Yes	No	No
<b>Resolution</b>	DataMan 50/60/70: 752x480 DataMan 72: 1280x960			752x480		360: 800x600 362: 1280x1024 363: 1600x1200	2048x1088
<b>Lens</b>	Fixed Adjustable			Fixed Adjustable S-Mount C-Mount, Liquid Lens ImageMax		C-Mount S-Mount Liquid Lens ImageMax	C-Mount
<b>Lighting</b>	2 LEDs		4 LEDs	4 LEDs, HPIL		8 Banks	HPIA, External
<b>Protection</b>	IP65	IP40 (E-Net)	IP40	IP65		IP65	IP65
<b>I/O</b>	2in/3out		1in/1out with adaptor	2in/2out		2in/4out	4in/4out
<b>Algorithms</b>	L, Q, QL, S, X		L, Q, QL, S	Q, QL, S, X		L, QL, Q, S, X	QL, X
<b>Decode rate</b>	45/sec: L/QL 5/sec: S		45/sec: L/QL 2/sec: S	45/sec: QL/Q/X 2/sec: S		45/sec: 300/302 30/sec: 303 (L/X)	120/sec
<b>Acquisition</b>	60 fps		60 fps	60 fps		360: 60 fps 362: 60 fps 363: 40 fps	150 fps

# Algorithms

Code	Description	1D	2D	HotBars	2DMax	PowerGrid
L	Linear, 1D Codes, HotBars, Ladder or Picket	X		X		
QL	Hotbars, 1D only, Omnidirectional	X		X		
S	Slow/Static. 5 decodes/sec. IDQuick (1-D, 2-D, omni)	X	X			
Q	IDQuick, Hotbars Omni. Best label-based algorithm	X	X	X	X	
X	2DMax+, 45 decodes/sec, 1-D and 2-D, HotBars omni	X	X	X	X	Avail

# More models give you more options to WIN.

	2-D Barcode Reading				2-D & 1-D Barcode Reading				1-D Barcode Reading			
	Direct Part Mark (DPM)	High Speed	Slow Speed	Multiple Codes	Mixed Codes	Challenging Codes	High Speed	Slow Speed	Multiple Codes	Omnidirectional	Oriented	
DataMan 150/152 QL 260/262 QL	•	•	•	•	•	•	•	•	•	•	•	
DataMan 150/152 S 260/262 S	•	•	•	•	•	•	•	•	•	•	•	
DataMan 150/152 Q 260/262 Q	•	•	•	•	•	•	•	•	•	•	•	
DataMan 150/152 X 260/262 X	•	•	•	•	•	•	•	•	•	•	•	

## QL Models

Best-in-class 1-D barcode reading with 1DMax™, which is optimized for omnidirectional barcode reading. QL models are field upgradeable to the Q model.

## S Models

For slow-moving parts or index motion where parts have well-marked 1-D/2-D codes.

## Q Models

High-performance code reading of 1-D/2-D codes on fast-moving parts. Includes 1DMax and ID Quick™ technologies.

## X Models

High-performance code reading for applications that require reading challenging 1-D/2-D codes, including Direct Part Mark (DPM) codes. X Models can also include patent pending PowerGrid™ technology to read codes without visible perimeters.