COGNEX
ID PRODUCTS

In-Sight

FIXED-MOUNT ID READERS

VERSATILE, RUGGED, AND SIMPLE TO USE

- Die-cast aluminum housing with sealed M12 connectors and protective lens cover provides an IP67 (NEMA 6) rating for dust and wash-down protection where required
- Built-in lighting and optics; an array of optional lighting kits available
- Built-in Ethernet 10/100 Base-T interface for factory floor communications

READ EVERY MARK ON EVERY PART...EVERY TIME

Cognex® In-Sight® fixed-mount ID readers provide unmatched code reading performance. These readers integrate lighting, camera, ID software, processor and communications into an industrial-grade design, making them the most versatile and rugged fixed-mount readers available today.

In-Sight ID readers incorporate IDMax™, a breakthrough in Data Matrix code reading software based upon Cognex patented PatMax® technology. IDMax handles a wide range of degradations to the appearance of the code, no matter what the cause, allowing In-Sight readers to deliver the industry's most reliable reading.

The high-speed digital acquisition system, DSP architecture, and optimized reading algorithms, assure continuously high read rates in direct part mark and label-based identification applications on the fastest production lines.

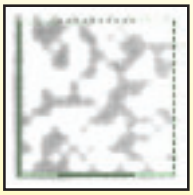
Three In-Sight ID models are available:

In-Sight 5110 provides high-performance 1D and 2D decoding for high-speed industrial identification and direct part mark identification and supports ISO and AS9132 mark quality metrics for code quality assessment at marking and reading stations.

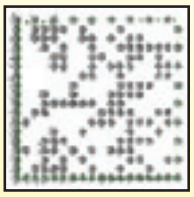
In-Sight 5410 provides all model 5110 capabilities, with additional processing power to achieve 1D and 2D code-reading throughput rates exceeding 7200 ppm… ideal for high-speed package and document sorting.

In-Sight 5411 adds high-resolution imaging (1024 x 768) to model 5410 functionality. This allows high-level verification, reading multiple codes and parts in a single field of view, greater flexibility of code position.

Outstanding Performance with Problem 2D Codes

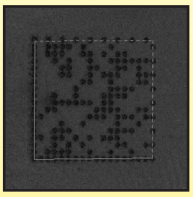


Poor Focus

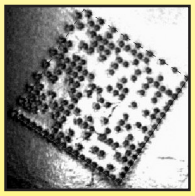


Model Image

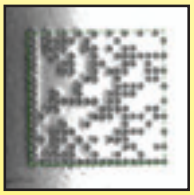
Washed Out



Low Contrast



Finder Degradation



Background Problems

FAST, RELIABLE CODE READING

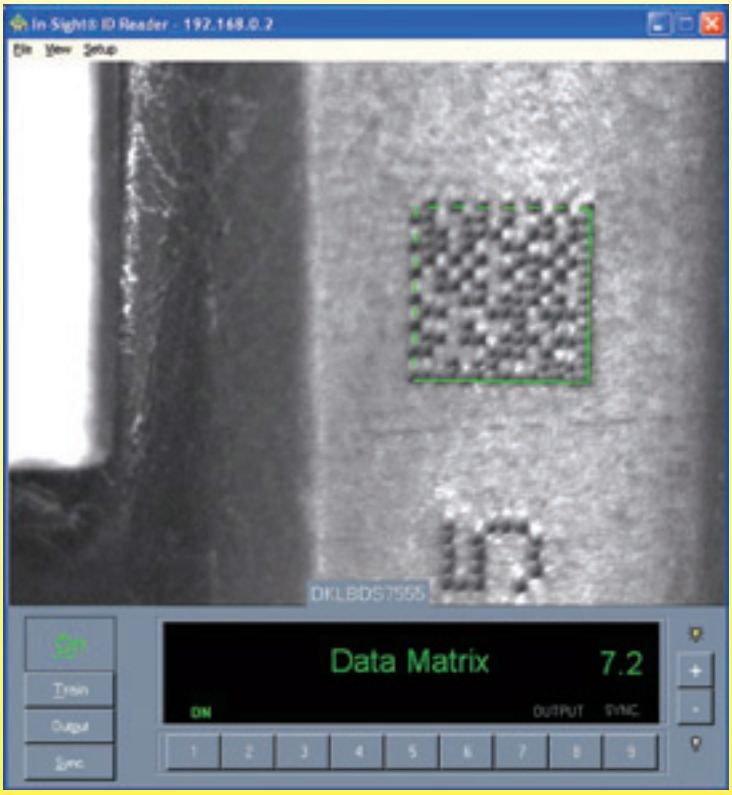
Industrial identification is very challenging due to variations in mark appearance, uncertainty of part position, and high production line speeds. The combination of sensor, processor architecture, and optimized ID software, allows In-Sight fixed-mount readers to meet high-speed production requirements, while maintaining accurate reading.

The ability to read direct part marks, codes on rotated parts, multiple codes in the field of view, and provide working distance flexibility makes these ID readers ideal for virtually any identification application. And, quality metrics are provided, which indicate how well the code marking process is working.

An easy to use graphical user interface specifically designed for ID reading allows fast and easy deployment. Add an array of communication options, and you have code readers that are absolutely unmatched for your current and future requirements.

Advantages

- *Real-time reading of 1D and 2D codes at rates over 7200ppm*
- *Includes IDMax – The industry's most reliable Data Matrix reading software*
- *Industry-standard mark quality assessment metrics for 1D and 2D codes*
- *Fast setup, plus reliable, robust operation*



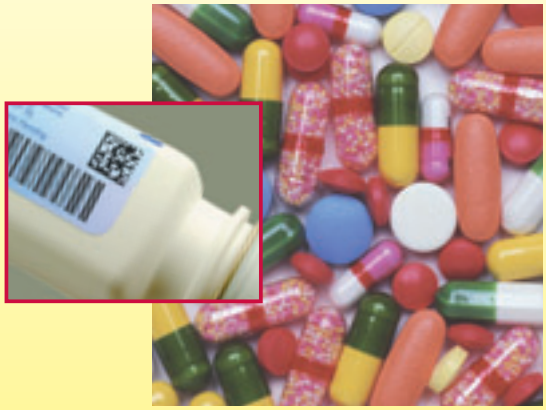
A simple GUI ensures the shortest possible time from opening the box to reading codes.

RELIABLE CODE READING FOR MANY INDUSTRIES

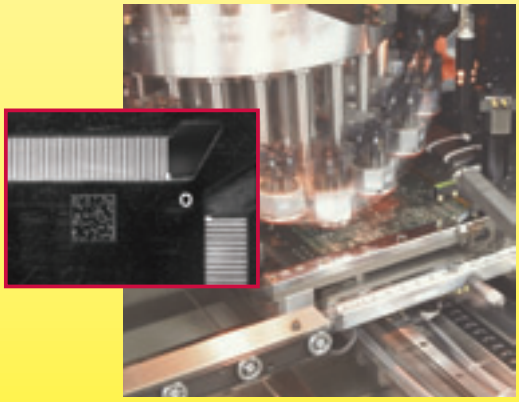
In-Sight ID readers are ideal for part traceability and process control in many industries, including automotive, electronics, medical, pharmaceutical, consumer products, food, beverage, and aerospace. Some of the many applications include:

- Reading 2D codes on torque converters and jet engine turbine blades
- Reading 2D marks on electronics components such as PCBs, IC packages, and lead frames
- Tracking contact lens parts and surgical instruments
- Reading 2D and RSS/CS codes on pharmaceutical packages
- Matching bar codes on medical test kit boxes with marked contents
- Reading high-speed 1D, 2D, and postal codes for parcel, package, and document sorting applications

Automotive Parts
In this application, a 2D code laser-etched onto a fuel injector is read.



Pharmaceuticals
Cognex ID readers provide accurate reading of multiple code formats in a single view.



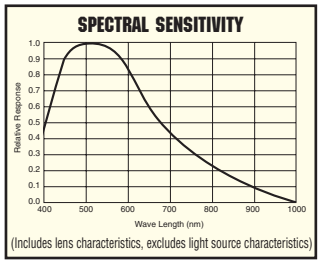
Electrical Components
Electronics manufacturers moving from bar code labels to Data Matrix due to space constraints and the need to include more data on parts use DataMan readers to identify boards and components.

Packaging
In-Sight fixed-mount ID readers are ideally-suited to a wide range of packaging applications.

SPECIFICATIONS

ID Tools		
1D Codes	Code 3 of 9; Code 128; Interleaved 2 of 5; Reduced Space Symbology (RSS); UPC/EAN; PostNet; Planet Code; Pharma Code; UPU-57	
2D Codes	Data Matrix; QR Code; PDF417; Composite Symbology (CC-A)	
Quality Assessment Metrics		
1D Codes	ISO 15416	
2D Codes		
Data Matrix	ISO 16022, AS9132, Cognex Supplemental Metrics	
QR Code	ISO 18004	
Firmware		
	In-Sight version 2.70 and later	
Memory		
Job/Program	16MB non-volatile flash memory; Unlimited storage via remote network device	
Image processing	64MB	
Image		
Sensor	1/3-inch CCD (5.84mm x 4.94mm; 6mm diagonal)	
	In-Sight 5110 and 5410	*In-Sight 5411*
	640 x 480 pixel display (307,200 sq. pixels, 7.4 x 7.4µm pixel size)	1024 x 768 pixel display (786,432 sq. pixels, 4.65 x 4.65µm pixel size)
	Electronic shutter speed: 32µs to 1000ms	
Acquisition	Rapid reset, progressive scan, full-frame integration	
	256 gray levels (8 bits/sec)	
	Gain/Offset controlled by software	
	In-Sight 5110 and 5410	*In-Sight 5411*
	Up to 60 full frames per second (exposure dependent)	Up to 20 full frames per second (exposure dependent)
Lens type	C-mount	
I/O		
Trigger	1 opto-isolated, acquisition trigger input	
	Remote software commands via Ethernet and RS232	
Trigger voltage	ON 20 to 28V (24V nominal); OFF 0 to 3V (12V nominal threshold)	
Trigger current	ON 0.9 to 1.3mA; OFF <150µA	
	Resistance ~22,000 Ohms	
Trigger delay	250µSec latency between leading edge of trigger and start of acquisition. Input pulse should be minimum of 1ms wide.	
Discrete inputs	8 inputs available, using optional Model 1450 I/O Expansion Module.	
Discrete outputs	2 built-in, high-speed outputs	
	8 additional outputs available, using optional Model 1450 I/O Expansion Module.	

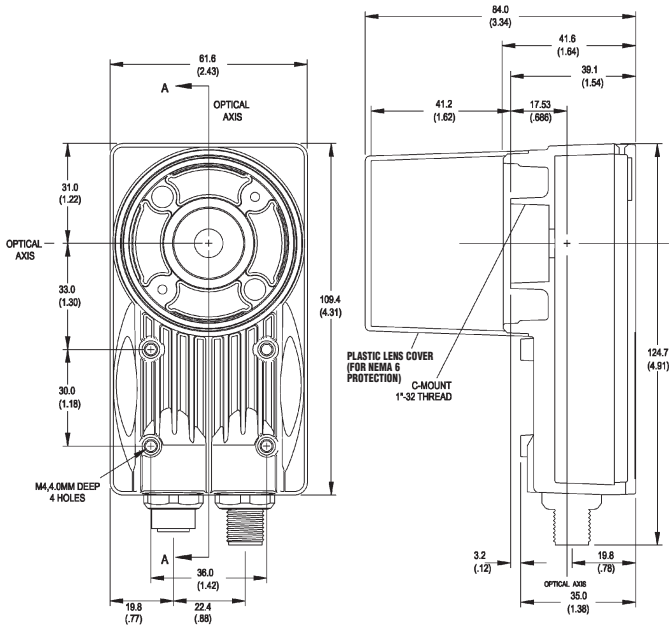
I/O (cont.)		
High-speed output voltage	28V maximum through external load	
High-speed output current	200mA maximum sink current	
	OFF state leakage current 200µA maximum	
	External load resistance 120 to 10K Ohms	
	Each line rated at a maximum 200mA, protected against overcurrent, short circuit, and transients from switching inductive loads. High current inductive loads require external protection diode.	
Status LEDs	Power, Network Status, Network Traffic, 2 user configurable	
Lighting		
Lighting methods	May be used with Cognex external light modules, the integrated light ring included in optional Image Formation System (IFS) kits, or with the optional Diffused Ring Light.	
Communications		
Network	1 Ethernet port, 10/100 BaseT, TCP/IP protocol. Supports Ethernet/IP and ModBus/TCP. Supports DHCP (factory default) or static IP address	
Serial	1 RS-232C port (1200 to 115,200 baud rates. 1200 and 2400 baud is not supported by the Model 1450 I/O Expansion Module.)	
Power		
Power consumption	24VDC ± 10%, 350mA	
Mechanical		
Material and finish	Die-cast aluminum housing, painted	
Mounting	Eight M4 threaded mounting holes (four front and four back)	
Dimensions	84mm (3.34 in) x 124.7mm (4.91 in) x 61.6mm (2.43 in) with lens cover installed 41mm (1.62 in) x 124.7mm (4.91 in) x 61.6mm (2.43 in) without lens cover installed	
Weight	297.6 g (10.5 oz) lens cover installed, w/o lens	
Environmental		
Operating temperature	0°C to 45°C (32°F to 113°F)	
Operating humidity	0 to 95%, non-condensing	
Storage temperature	-30°C to 80°C (-22°F to 176°F)	
Storage humidity	0 to 95%, non-condensing	
Protection	IP67 (NEMA Type 6) with lens cover installed	
Shock	80 Gs (800 M/S^2 at 11 ms) per IEC 68-2-27 EA	
Vibration	10 Gs (10-to 500 Hz at 100 M/S^2 / 15mm for two hours in each axis) per IEC 68-2-6 FC	
Certifications		
Approvals	CE, CUL, FCC	



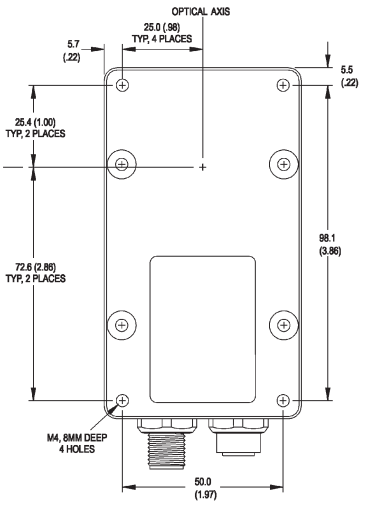
(Includes lens characteristics, excludes light source characteristics)

Image Formation System (IFS) Kits

Kit Part Number	Lens Attributes	
	Working Distance (mm)	Field of View (mm)
IFS-RRL050-0008	59	8
IFS-RRL050-0012	75	12
IFS-RRL050-0018	103	18
IFS-RRL050-0027	149	27
IFS-RRL050-0040	218	40
IFS-RRL050-0060	324	60
IFS-RRL050-0090	484	91



Note: Measurements are provided in millimeters. Numbers in parenthesis are in inches.



COGNEX
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