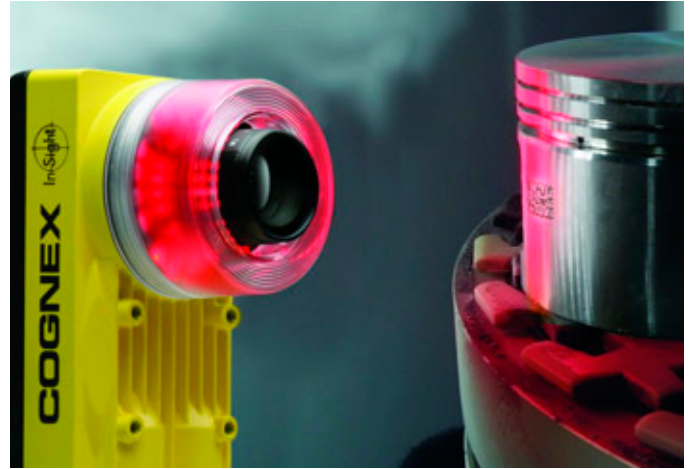


Industrial-grade Fixed-mount ID Reader and Verifier

The Cognex® In-Sight® 5110 fixed-mount ID reader provides unmatched code reading performance. This reader integrates lighting, camera, ID software, processor and communications into an industrial-grade design . . . making it the most versatile and rugged fixed-mount reader available today.

The In-Sight 5110 incorporates Cognex IDMax™ Data Matrix™ code reading software, based on the industry-leading PatMax® technology from Cognex, to provide the most robust and reliable decoding under all conditions. And, 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. In addition to being ideal for Direct Part Mark Identification and high-speed industrial ID applications such as package and document sorting, the 5110 supports ISO mark quality metrics for 1D and 2D code verification at marking and read stations.

Packaged to protect against factory floor hazards, the In-Sight 5110 can be washed down if required, and stand up to harsh environments. An easy to use graphical user interface specifically designed for ID reading and verification 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. What's more, the In-Sight 5110 eliminates the need for costly peripheral devices, reducing the overall cost of implementing a reading application.



In-Sight 5110 reading 2D Data Matrix code direct-marked on automotive part.

A Wide Array of Applications

The 5110 ID reader facilitates 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

Advantages

- ▶ Real-time reading and verification of 1D and 2D codes at rates up to 7200 ppm
- ▶ Industry-leading IDMax software tool provides unmatched reading of Data Matrix codes
- ▶ Fully-integrated IP67 (NEMA 6) rated package includes processor, camera, lighting, software, and I/O
- ▶ Fast setup, plus reliable, robust operation
- ▶ Built-in Ethernet 10/100 Base-T interface for factory floor communications

Performance ... Very High Speed and Very Reliable Reading

Industrial identification is very challenging due to variations in identification mark appearance, uncertainty of part position, and high production line speeds. It is the combination of the sensor and processor architecture, along with the optimization of identification software, that allows the In-Sight 5110 to cover the range of application demands of high-speed packaging and document ID, as well as the challenging reading of Direct Part Mark ID.

Applications such as high-speed sorting require that ID reading performance keep up with line speed. The challenge is to not only read, but to also maintain optimum accuracy. This requires the image acquisition, processing, and software that only the In-Sight 5110 ID can deliver. With a full-frame acquisition of 60 frames per second, and partial image acquisitions of up to 120fps, the In-Sight 5110 is capable of real-time reading of 1D and 2D marks at a rate of up to 7200 ppm.

Reading of identification marks that are directly marked on parts is very challenging. The challenge is to successfully read the mark regardless of changes in part appearance due to variations in part material, marking process, position to camera, coatings, damage, etc. The In-Sight 5110 incorporates IDMax Data Matrix code reading based on the industry-leading PatMax® technology from Cognex. IDMax provides the most robust and reliable decoding under all conditions.

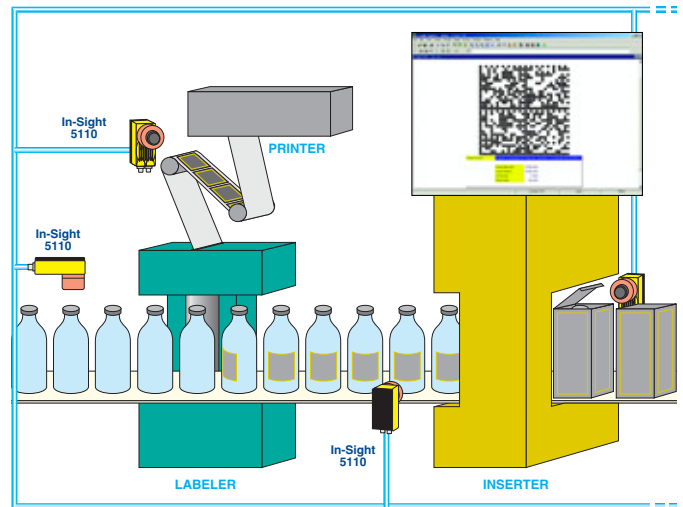
Additionally, the ability to read codes on rotated parts, read multiple codes in the field of view, and provide working distance flexibility make these ID readers ideal for virtually any reading application. And, quality metrics are provided in real time, indicating how well the code marking process is working.

Product Versatility ... To Meet your Exact Requirements

The In-Sight 5110 is versatile in addressing a wide range of fixed-mount reading and verification applications and performance requirements.

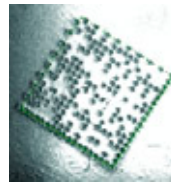
In addition, these readers are versatile in their ability to integrate into production lines and equipment. Environmental conditions, space limitations, part variability, and marking process differences necessitate flexibility in an ID reader. Optional Image Formation System (IFS) kits provide a choice of lenses, a ring light, and protective lens cover with which to achieve that flexibility. These kits allow integrated lighting configurations that cover a broad range of working distance, field of view, and imaging needs.

Furthermore, these In-Sight readers provide the versatility to be used in either a standalone configuration or as part of a networked factory solution. Networked In-Sight ID readers facilitate the remote control, monitoring, and management of reader activity, as well as access to real-time data.

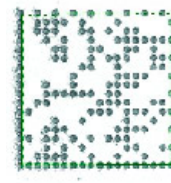


The In-Sight 5110 meets the demanding requirements of high-speed packaging and document ID.

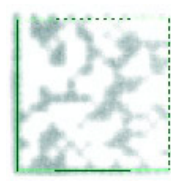
Outstanding Performance with 2D Codes Having Degradation and Background Problems



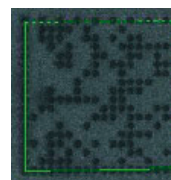
Rotation



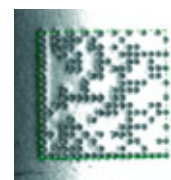
Model Image



Poor Focus



Low Contrast



Background



Washed Out

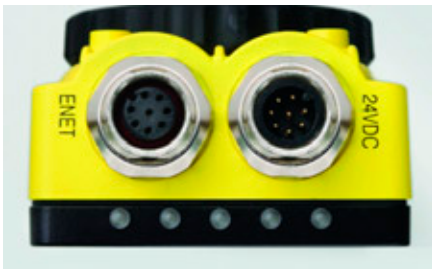


The lenses, ring light, and protective lens cover of optional IFS kits allow the In-Sight 5110 to meet a wide array of application configurations.

Rugged Design for the Factory Floor

In-Sight readers are industrial grade, both inside and out.

On the inside, Cognex, the world leader in machine vision, brings the many years of field-proven machine vision technology into this new generation of Industrial ID readers. The In-Sight 5110 reading and verification software is designed specifically for industrial applications. Industrial-grade image acquisition, image processing and image analysis software result in fast, accurate and reliable 1D and 2D reading ... even under the most difficult applications.



On the outside, the new In-Sight reader incorporates a rugged, low profile, die-cast aluminum housing and sealed industrial M12 connectors, and is rated

for shock and vibration to IEC specifications. When used with the included lens cover, the code readers achieve an IP67 (NEMA 6) rating for dust and wash-down protection on the factory floor.

Cost Effective... Initially and Down the Road

The low overall cost of ownership of the In-Sight 5110 is industry leading. Competitively priced, this In-Sight reader further reduces costs by eliminating the need to purchase an additional enclosure for achieving IP-67 rating. In addition, the integrated LED lighting option supports strobing for moving applications, which eliminates the need for an expensive external strobe illumination source and power supply.

Lifetime ownership costs are kept low due to the robust ID reading algorithms, which eliminate ongoing support costs associated with continued adjustment of the reader to accommodate normal variations in the environment and the manufacturing process.

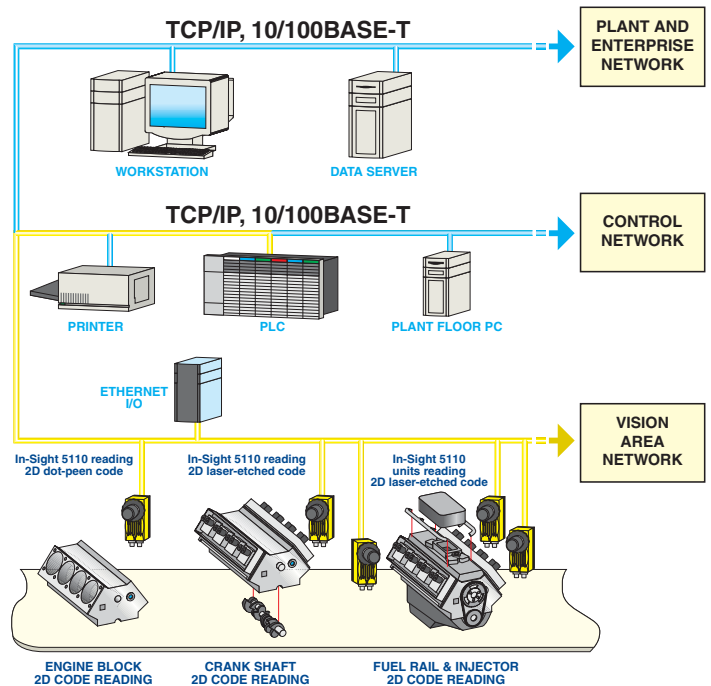
What's more, compatibility of the 5110 with all general-purpose In-Sight vision sensors provides the operating efficiency gained from having a single vendor for all of your machine vision needs.

Simplified Setup and Simple to Maintain

Fast, simple setup is provided by a graphical user interface that's specific to code reading. The In-Sight 5110 comes ready to read the most popular code types and combinations of codes in a single field of view. In order to provide easy communication with other devices on the factory network, the 5110 is 10/100 Base-T Ethernet enabled, and supports

Ethernet/IP, ModBus/TCP, as well as discrete I/O, serial, and point-to-point communications. Support for DeviceNet communications is available via the Cognex DeviceNet Interface.

Once set up, the In-Sight reader simply reads. Robust ID reading algorithms, provide continuous reading with no further adjustments required due to influences of ambient light level changes, differing product background changes, or variations in the mark quality.



World-class Support

Cognex worldwide support provides a variety of resources to help users achieve successful applications. These resources include Web-based technical support, as well as hardware service programs. Educational services are provided online, at customer sites, and at Cognex facilities worldwide. And, for extending machine vision beyond code reading, Cognex offers a complete line of In-Sight vision sensors for standalone use, or for use on factory networks.

New Report is a "Must" for Direct Part Marking

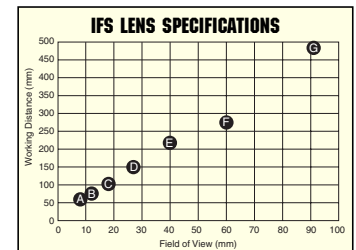
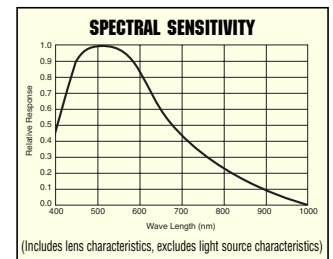
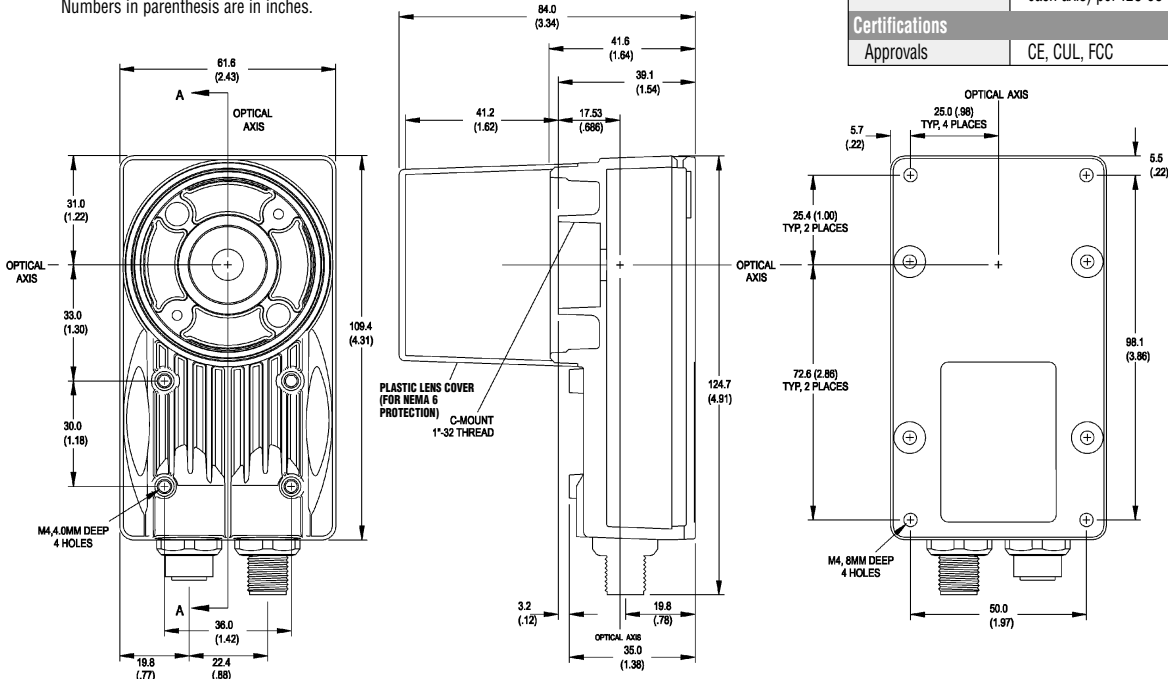
Implementing Direct Part Mark Identification (DPMI) - 10 Important Considerations is an in-depth look at the most important factors to consider when implementing DPMI for total traceability. Parts and assembly suppliers will appreciate the valuable tips on choosing the best code type and marking method for tracking manufactured items through production, plus much more! For your free copy, go to www.cognex.com. or contact your local Cognex sales engineer.

Specifications

Code Support	
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 (CS)
Firmware	
	In-Sight version 2.52 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 (5.84 x 4.94mm 6mm diagonal) 640 x 480 pixel display (307,200 sq. pixels, 7.4 x 7.4µm) 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 Up to 60 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
Voltage	ON 20 to 28V (24V nominal) OFF 0 to 3V (12V nominal threshold)
Current	ON 0.9 to 1.3mA OFF <150µA Resistance ~22,000 Ohms
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
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 over-current, 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, or with the integrated light ring included in optional Image Formation System (IFS) kits. Kits include ring light, lens, and protective lens cover.
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

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



Each letter in the above chart refers to the specific lens provided with an optional IFS kit.