

# Lead with Speed

Setting the pace of machine vision

In-Sight 3800 Series

## **In-Sight 3800 Series**

All-in-one vision system meets all your vision needs

#### High speed, high resolution, high flexibility. The In-Sight® 3800 has it all.

This advanced vision system provides a powerful, yet easy-to-use, solution for automated inspections. Embedded with a full set of robust rule-based tools and innovative edge learning technology, In-Sight 3800 solves a range of manufacturing applications, from defect detection and assembly verification to character reading and more.

- Run more inspections in less time.
- Improve the accuracy of your results.
- Seamlessly scale your solution.

### Run more inspections in less time

Maximize throughput with high-speed processing and quick setup.

Tools running 2X faster than previous generation vision systems offer ultimate power and performance for any job



Advanced defect detection and OCR functionality automates a variety of tasks, from simple to complex

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### Improve the accuracy of your results

Generate high-resolution, high-contrast images that detect even the most subtle defects.

Integrated multi-color lighting accommodates a range of application requirements and operating conditions

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Unique high-dynamic range plus (HDR+) technology optimizes image formation in a single acquisition





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## Seamlessly scale your solution

Create jobs in a common software platform that supports scalability across In-Sight products and offers both point-and-click and advanced setup options.

Robust spreadsheetbased job creation enables more control over tool parameters for complex tasks



Intuitive EasyBuilder<sup>®</sup> interface simplifies the training workflow for quick deployment

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Without HDR

## Comprehensive toolset solves tasks of varying complexity

Integrating AI and rule-based tools in a single vision system, the In-Sight 3800 addresses a wide range of error-proofing applications. The tools can be used individually for simple jobs or combined to automate more challenging problems.





## 🕸 Al tools

The In-Sight 3800 is embedded with powerful edge learning tools that leverage AI technology to train and process images on device, or "at the edge" of where the data is collected, to deliver accurate results in real time.

Edge learning tools are easy-to-use and simple to deploy with example-based training and no experience needed.



ViDi EL Segment

Extract defects, regions, and objects from complex parts and backgrounds.



ViDi EL Classify

Detect and sort parts based on multiple features or characteristics.



ViDi EL Read

Read characters on reflective, low-contrast, and non-flat surfaces, including multi-line text.





## Gauze Cold pack



Training

ViDi EL tools can be trained in minutes, using as few as five to ten example images of the relevant classes or characters. Training is done directly on device, without the use of a central processing unit (CPU).

#### **Confidence score**

Get real-time, visual feedback on the accuracy of your results. The confidence score verifies whether the ViDi EL tool correctly predicted the output, leading to less manual intervention and more reliable inspections.

\*Rule-based tool performance is 2x faster than In-Sight 7800/7900 series. Al tool performance is 3-6x faster than In-Sight 2800 series.



## Segmentation examples

Automotive: Segment nested parts for targeted inspection



Food and beverage: Detect and classify multiple types of defects

Automotive: Identify subtle, variable defects



Electronics: Extract different regions in a part and segment them by class





Life sciences: Separate the liquid levels in test tube samples



Food and beverage: Ensure shape uniformity of products moving down the line





## **Classification examples**

Consumer products: Detect presence/absence in kitted products and run multi-ROI classification



Electric vehicle (EV) batteries: Check parts for surface-level defects



Automotive electronics: Detect presence/absence of components and classify defects

Red

Blue

Gray

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Automotive assembly: Inspect large parts for subtle defects





Consumer products: Classify scents or flavors on packaging



#### Food & beverage: Identify damaged or missing components







Logistics: Read multiple lines of text on different package types



## Automotive: Read codes on low-contrast and reflective surfaces



Automotive: Decipher hard-to-read text etched on metallic surfaces



## Consumer product: Decipher lot codes against variable backgrounds



Pharmaceutical: Perform on-line verification at high speeds



Food & beverage: Read lot codes on multiple products at the same time





## **Rule-based vision tools**

In-Sight 3800 is also equipped with an extensive library of industry-proven traditional vision tools that allow you to measure distance and blobs, count pixels, and patterns, read codes, guide robots, perform math and logic, and more. These tools run 2X faster on In-Sight 3800 than previous generation products, so you can solve applications more quickly and accommodate faster line speeds.



Barcode reading: Read codes on curved surfaces

Gauging: Detect edges and measure the distance between them



Brightness: Detect presence/absence of components based on varying brightness levels



Robotic guidance: Pick and place finished products into bins



**Counting: Count components to verify completeness** 



Code reading and OCR: Read multiple 2D codes and text across a large scanning area



### Common software platform offers flexible development options

In-Sight Vision Suite software is common across all In-Sight products and includes two programming environments — spreadsheet and EasyBuilder — which allows you to seamlessly scale your solution as your business needs evolve.

### Spreadsheet guides users through advanced applications

The In-Sight spreadsheet interface allows you to quickly set up and run jobs without the need for programming. This robust development environment provides you with the flexibility to make critical adjustments to job parameters, so you can adapt your applications as your requirements change.

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#### Powerful spreadsheet interface allows users to solve complex applications





## EasyBuilder development environment simplifies setup and delivers rapid turnaround

With its point-and-click programming, the EasyBuilder interface within In-Sight Vision Suite is ideal for developing simple or common jobs. The intuitive process guides developers step-by-step through setup — from image capture to the final result and beyond — allowing both new and experienced users to configure vision applications.



Comprehensive set of traditional rule-based vision tools and innovative edge learning tools

Fast, 2-click image formation



### Web-based HMI offers real-time application testing and optimization

The In-Sight 3800 provides access to a web-based human-machine interface (HMI) that enables runtime visualization. From the HMI, users can view inspection results and modify setup parameters to optimize their application.



EasyView displays tags from jobs in a simplified format

CustomView shows advanced settings from the spreadsheet

## Set up applications, directly on the factory floor, with VisionView Web

VisionView Web is a display panel that allows you to quickly train, update, and monitor jobs on the production line, without the need for a PC. Having this technology on the factory floor improves efficiency, facilitates easy device management, and provides real-time feedback for immediate process improvements.



www.cognex.com/VisionView

## Full-featured vision system solves wide range of applications

The In-Sight 3800 is engineered with the entire suite of innovative Cognex vision tools and convenient features that deliver fast, reliable automation.





## Multi-color lighting for flexibility

Multi-color (RGBW and IR) lighting options allow you to optimize image contrast, regardless of operating conditions. Simply click a button to change the light color and generate high-resolution images for more accurate inspections.

#### Powerful lighting for long-range applications

Advanced illumination strengthens intensity to create high-quality images. Available in red and white options, this lighting maximizes coverage and minimizes exposure times for greater throughput.





Actual part



Red light: Numbers are unclear



Blue light: Numbers are clear



## Innovative technology pushes the boundaries of HDR

HDR+ enhances the capabilities of HDR technology by optimizing contrast automatically. This creates a more uniformed, more detailed image in a single acquisition. Available in both monochrome and color options, HDR+ delivers higher contrast and image quality that allow you to:

- See features that were not visible before
- Reduce light intensity
- Increase depth of field

#### Part inspection and OCR



Without HDR: Embedded parts are unclear.



With HDR+: Serial code and bearings are both visible.

#### Greater depth-of-field

HDR+ reduces over- and under-exposure, providing greater depth-of-field than standard HDR technology and conventional imaging sensors.



#### **Faster line speeds**

HDR+ significantly reduces exposure times, enabling you to accommodate lines up to 80% faster.



### Scalable architecture for current and future needs

The In-Sight 3800 series offers a variety of accessories and modular components. This flexibility enables users to adapt to keep up with changing demands, such as new changes, faster line speeds, and higher quality standards.



For additional details on accessory compatibility, please refer to page 19.

### Need help configuring your system?

Watch this explainer video that walks you step-by-step through the build-up process.



www.cognex.com/in-sight-3800-buildup



Bit Depth    6-bit monochrome    24-bit color    8-bit monochrome    24-bit color    24-bit color	In-Sight 3800 Series	IS3801M	IS3801C	IS3803M	IS3803C	IS3805M	IS3805C
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Bit Part of the second outputs when connected to the Breakout cable.      Discrete Outputs    Up to 4 high-speed outputs when connected to the Breakout cable.      Bitserete Outputs    Pass/Fail LED and Indicator Ring, Network LED and Error LED.      Number of Focus Cycles: 1800 M cycles    Number of Focus Cycles: 1800 M cycles      ob/Program Memory    7.2 GB non-volatile flash memory: unlimited strage via remote network device.      mage Processing Memory    512 MB SDFAM      Letwork Communication    1/USB-C port (supports direct connection to In-Sight Vision Suite on a PC, no factory floor protocols supported).      Supports DHCP, static, and link/-ocal IP address configuration.    Supports DHCP, static, and link/-ocal IP address configuration.      Communication Protocols    TCP/IP. PRCFINET, EtherNeUP, SLMP, ModbusTCP. (S)FTP, RS-232C      Ower Consumption    24 V DC ± 10%, 2.0 A maximum.      Ower Coutput    24 V DC ± 1.0 A maximum to external light.      Itaterial    Die-cast aluminum ad zinc housing.      Inish    Painted.      Veright    Sum paistic C-Mount cover (COV-380-CMNT-36): 625 g (22.0 oz.) - no lens included.      With 75 mm plastic C-Mount cover (COV-380-CMNT-45): 625 g (22.0 oz.) - no lens included.      With 85 mm plastic C-Mount cover (COV-380-CMNT-36): 625 g (22.0 oz.) - no lens included.      With 75		1 opto-isolated, acquis	ition trigger input.				
Itatus LEDs    Pass/Fail LED and Indicator Ring, Network LED and Error LED.      ligh Speed Liquid Lens ifespan    Number of Focus Cycles: 1800 M cycles      ob/Program Memory    7.2 GB non-volatile flash memory, unlimited storage via remote network device.      nage Processing Memory    512 MB SDRAM      2 Ethemet ports, 10/100/1000 BaseT with auto MDIX. IEEE 802.3 TCP/IP Protocol.      1 USB-C port (supports direct connection to In-Sight Vision Suite on a PC, no factory floor protocols supported). Supports DHCP, static, and ink-local IP address configuration.      communication Protocols    TCP/IP, PROFINET, EtherNet/IP, SLMP, ModbusTCP (S)FTP, RS-232C      bower Consumption    24 V DC ± 10%, 2.0 A maximum.      cover Consumption    24 V DC ± 10.4 maximum to external light.      faterial    Die-cast aluminum and zinc housing.      ninsh    Painted.      foounting    Four M3 threaded mounting holes. See Accessories for supported mounts. Pattern: 38.5 × 86.5 mm (1.52 × 2.60 in)      fwith 45 mm plastic C-Mount cover (COV-380-CMNT-45): 625 g (22.0 oz.) - no lens included. With 65 mm plastic C-Mount cover (COV-380-CMNT-45): 625 g (22.0 oz.) - no lens included. With 50 mm plastic C-Mount cover (COV-380-CMNT-45): 625 g (22.0 oz.) - no lens included. With 60 mm plastic C-Mount cover (COV-380-CMNT-45): 625 g (22.0 oz.) - no lens included. With Whiti-Torch Illumination, High Speed Liquid Lens (16 mm), and standard front cover: 840 g (24.6 oz.). With Multi-Torch Illumination, High Speed Liquid	·						
Igh Speed Liquid Lens    Number of Focus Cycles: 1800 M cycles      ob/Program Memory    7.2 GB non-volatile flash memory; unlimited storage via remote network device.      mage Processing Memory    512 MB SDRAM      2 Ethemet ports, 10/100/1000 BaseT with auto MDIX. IEEE 802.3 TCP/IP Protocol.    1 USB-C port (supports direct connection to In-Sight Vision Suite on a PC, no factory floor protocols supported).      Supports DHCP, static, and link-local IP address configuration.    Supports DHCP, static, and link-local IP address configuration.      forwer Consumption    24 V DC ± 10%, 2.0 A maximum.    Top/IP, PROFINET, EtherNet/IP, SLMP, ModbusTCP, (S)FTP, RS-232C      forwer Coutput    24 V DC ± 10%, 2.0 A maximum.    Top/IP, PROFINET, EtherNet/IP, SLMP, ModbusTCP, (S)FTP, RS-232C      forwer Coutput    24 V DC ± 10%, 2.0 A maximum.    Top/IP, PROFINET, EtherNet/IP, SLMP, ModbusTCP, (S)FTP, RS-232C      forwer Coutput    24 V DC ± 10%, 2.0 A maximum.    Top/IP, PROFINET, EtherNet/IP, SLMP, ModbusTCP, (S)FTP, RS-232C      forwer Coutput    24 V DC ± 10%, 2.0 A maximum.    Top/IP, PROFINET, EtherNet/IP, SLMP, ModbusTCP, (S)FTP, RS-232C      forwer Coutput    24 V DC ± 10%, 2.0 A maximum.    Four M3 threaded mounting holes. See Accessories for supported mounts.      foruting    Four M3 threaded mounting holes. See Accessories for supported mounts.    Pattern: 36 5 × 85.5 mm (1.52 × 2.60 in)	Discrete Outputs		•				
Interest of Pocus Cycles: 1800 M cycles      ob/Program Memory    7.2 GB non-volatile flash memory: unlimited storage via remote network device.      nage Processing Memory    512 MB SDRAM      2 Ethernet ports, 10/10/01000 BaseT with auto MDIX. IEEE 802.3 TCP/IP Protocol.    1 USB-C port (supports direct connection to In-Sight Vision Suite on a PC, no factory floor protocols supported).      supports DHCP, static, and link-local IP address configuration.    TCP/IP, PROFINET, EtherNet/IP, SLMP, ModbusTCP, (S)FTP, RS-232C      ower Consumption    24 V DC at 1.0 A maximum.    TCP/IP, PROFINET, EtherNet/IP, SLMP, ModbusTCP, (S)FTP, RS-232C      ower Output    24 V DC at 1.0 A maximum.    TCP/IP, PROFINET, EtherNet/IP, SLMP, ModbusTCP, (S)FTP, RS-232C      ower Output    24 V DC at 1.0 A maximum.    TCP/IP, PROFINET, EtherNet/IP, SLMP, ModbusTCP, (S)FTP, RS-232C      ower Output    24 V DC at 1.0 A maximum.    TCP/IP, PROFINET, EtherNet/IP, SLMP, ModbusTCP, (S)FTP, RS-232C      ower Output    24 V DC at 1.0 A maximum.    TCP/IP, PROFINET, EtherNet/IP, SLMP, ModbusTCP, (S)FTP, RS-232C      tower Output    24 V DC at 1.0 A maximum.    TCP/IP, PROFINET, EtherNet/IP, SLMP, ModbusTCP, (S)FTP, RS-232C      tower Output    24 V DC at 1.0 A maximum.    TCP/IP, PROFINET, EtherNet/IP, SLMP, ModbusTCP, (S) (22.0 oz.) - no lens included.      totatage Tamperature    Touriston at	tatus LEDs	Pass/Fail LED and Indicator Ring, Network LED and Error LED.					
mage Processing Memory  512 MB SDRAM    Vetwork Communication  2 Ethermet ports, 10/100/1000 BaseT with auto MDIX. IEEE 802.3 TCP/IP Protocol.    1 USB-C port (supports direct connection to In-Sight Vision Suite on a PC, no factory floor protocols supported).    Supports DHCP, static, and link-local IP address configuration.    Communication Protocols  TCP/IP, PROFINET, EtherNet/IP, SLMP, ModbusTCP, (S)FTP, RS-232C    Power Consumption  24 V DC ± 10%, 2.0 A maximum.    Power Output  24 V DC ± 10%, 2.0 A maximum to external light.    Alaterial  Die-cast aluminum and zinc housing.    Finish  Painted.    Mounting  Four M3 threaded mounting holes. See Accessories for supported mounts.    Pattern: 38.5 × 58.5 mm (1.52 × 2.60 in)  hr.Sight 3800 with no accessories attached: 570 g (20.10 oz).    With 45 mm plastic C-Mount cover (COV-380-CMNT-45): 625 g (22.0 oz.) - no lens included.    With 50 mm plastic C-Mount cover (COV-380-CMNT-45): 635 g (22.9 oz.) - no lens included.    With 45 mm plastic C-Mount cover (COV-380-CMNT-45): 635 g (22.9 oz.) - no lens included.    With With Torch Illumination, High Speed Liquid Lens (15 mm), and dome attachment: 970 g (34.2 oz.).    With Multi-Torch Illumination, High Speed Liquid Lens (25 mm): 2935 g (103.5 oz.)    With White Torch-HR Illumination, High Speed Liquid Lens (25 mm): 2935 g (105.1 oz.)    With Whit	• • •	Number of Focus Cycles: 1800 M cycles					
2 Ethernet ports, 10/100/1000 BaseT with auto MDIX. IEEE 802.3 TCP/IP Protocol.    1 USB-C port (supports direct connection to In-Sight Vision Suite on a PC, no factory floor protocols supported).    Supports DHCP, static, and link-local IP address configuration.    Communication Protocols  TCP/IP, PROFINET, EtherNet/IP, SLMP, ModbusTCP, (S)FTP, RS-232C    Power Consumption  24 V DC ± 10%, 2.0 A maximum.    Power Output  24 V DC ± 10%, 2.0 A maximum.    Power Output  24 V DC ± 10. A maximum to external light.    Die-cast aluminum and zinc housing.    Finish  Painted.    Pour M3 threaded mounting holes. See Accessories for supported mounts.    Pattern: 38.5 × 58.5 mm (1.52 × 2.60 in)    In-Sight 3800 with no accessories attached: 570 g (20.10 oz).    With 45 mm plastic C-Mount cover (COV-380-CMNT-45): 625 g (22.4 oz.) - no lens included.    With 60 mm plastic C-Mount cover (COV-380-CMNT-55): 650 g (22.9 oz.) - no lens included.    With Multi-Torch Illumination, High Speed Liquid Lens (16 mm), and dome attachment: 970 g (34.2 oz.).    With Multi-Torch Illumination, High Speed Liquid Lens (25mm): 2935 g (103.5 oz.)    With Multi-Torch Illumination, High Speed Liquid Lens (25mm): 2935 g (103.5 oz.)    With Multi-Torch Illumination, High Speed Liquid Lens (25mm): 2935 g (103.5 oz.)    With Multi-Torch Illumination, High Speed Liquid Lens (25mm): 2935 g (103.5 oz.)	Job/Program Memory	7.2 GB non-volatile flash memory; unlimited storage via remote network device.					
Network Communication    1 USB-C port (supports direct connection to In-Sight Vision Suite on a PC, no factory floor protocols supported). Supports DHCP, static, and link-local IP address configuration.      Communication Protocols    TCP/IP, PROFINET, EtherNet/IP, SLMP, ModbusTCP, (S)FTP, RS-232C      Power Consumption    24 V DC ± 10%, 2.0 A maximum.      Power Output    24 V DC at 1.0 A maximum to external light.      Adatrial    Die-cast aluminum and zinc housing.      Finish    Painted.      Aounting    Four M3 threaded mounting holes. See Accessories for supported mounts. Pattern: 38.5 × 58.5 mm (1.52 × 2.60 in)      In-Sight 3800 with no accessories attached: 570 g (20.10 oz).    With 45 mm plastic C-Mount cover (COV-380-CMNT-45): 625 g (22.0 oz.) - no lens included.      With 46 mm plastic C-Mount cover (COV-380-CMNT-60): 635 g (22.4 oz.) - no lens included.    With 46 mm plastic C-Mount cover (COV-380-CMNT-60): 635 g (22.9 oz.) - no lens included.      With Multi-Torch Illumination, High Speed Liquid Lens (16 mm), and standard front cover: 840 g (29.6 oz.).    With Multi-Torch-HR Illumination, High Speed Liquid Lens (25mm): 2930 g (105.1 oz.)      With White Torch-HR Illumination, High Speed Liquid Lens (25mm): 2930 g (105.1 oz.)    With White Torch-HR Illumination, High Speed Liquid Lens (25mm): 2930 g (105.1 oz.)      With Multi-Torch Illumination, High Speed Liquid Lens (25mm): 2930 g (105.1 oz.)    With White Torch-HR Illumination, High Speed Liquid Lens (25mm): 2930 g (105.1	mage Processing Memory	512 MB SDRAM					
Communication ProtocolsTCP/IP, PROFINET, EtherNet/IP, SLMP, ModbusTCP, (S)FTP, RS-232CPower Consumption24 V D C ± 10%, 2.0 A maximum.Power Output24 V D C ± 1.0 A maximum to external light.MaterialDie-cast aluminum and zinc housing.FinishPainted.MountingFour M3 threaded mounting holes. See Accessories for supported mounts.Pattern: 38.5 × 58.5 mm (1.52 × 2.60 in)In Sight 3800 with no accessories attached: 570 g (20.10 oz).With 45 mm plastic C-Mount cover (COV-380-CMNT-45): 625 g (22.0 oz.) - no lens included.With 57 mm plastic C-Mount cover (COV-380-CMNT-50): 635 g (22.4 oz.) - no lens included.With 45 mm plastic C-Mount cover (COV-380-CMNT-60): 635 g (22.9 oz.) - no lens included.With 75 mm plastic C-Mount cover (COV-380-CMNT-60): 635 g (22.9 oz.) - no lens included.With Multi-Torch Illumination, High Speed Liquid Lens (16 mm), and dome attachment: 970 g (34.2 oz.).With Multi-Torch Illumination, High Speed Liquid Lens (25 mm): 2930 g (105.1 oz.)Ambient/Environment°C to 40° C (32° F to 104° F)Storage Temperature-20° C to 80° C (-4° F to 176° F)Humidity-95% non-condensingProtectionIP67 with all cables properly attached (or the provided connector plug installed), the IP67-rated cover, or Multi Torch attachment properlyShock (Packaging)IEC 60068-2-27: 18 shocks (3 shocks in each polarity in each (X, Y, Z) axis) 80 Gs (800 m/s2 at 11 ms, half-sinusoidal) with cables or plugs and a 150 gram or lighter lens attached.	Network Communication	1 USB-C port (supports direct connection to In-Sight Vision Suite on a PC, no factory floor protocols supported).					
Power Consumption  24 V DC ± 10%, 2.0 A maximum.    Power Output  24 V DC at 1.0 A maximum to external light.    Valerial  Die-cast aluminum and zinc housing.    Finish  Painted.    Kounting  Four M3 threaded mounting holes. See Accessories for supported mounts. Pattern: 38.5 × 58.5 mm (1.52 × 2.60 in)    In-Sight 3800 with no accessories attached: 570 g (20.10 oz).  With 45 mm plastic C-Mount cover (COV-380-CMNT-45): 625 g (22.0 oz.) - no lens included.    With 45 mm plastic C-Mount cover (COV-380-CMNT-5): 650 g (22.0 oz.) - no lens included.  With 56 mm plastic C-Mount cover (COV-380-CMNT-5): 650 g (22.0 oz.) - no lens included.    With 50 mm plastic C-Mount cover (COV-380-CMNT-5): 650 g (22.0 oz.) - no lens included.  With 57 mm plastic C-Mount cover (COV-380-CMNT-5): 650 g (22.0 oz.) - no lens included.    With Multi-Torch Illumination, High Speed Liquid Lens (16 mm), and standard front cover: 840 g (29.6 oz.).  With Multi-Torch Illumination, High Speed Liquid Lens (25mm): 2935 g (103.5 oz.)    With White Torch-HR Illumination, High Speed Liquid Lens (25mm): 2980 g (105.1 oz.)  Mith White Torch-HR Illumination, High Speed Liquid Lens (25mm): 2980 g (105.1 oz.)    Ambient/Environment  o° C to 40° C (4° F to 176° F)	Communication Protocols						
Power Output24 V DC at 1.0 A maximum to external light.MaterialDie-cast aluminum and zinc housing.FinishPainted.MountingFour M3 threaded mounting holes. See Accessories for supported mounts. Pattern: 38.5 × 58.5 mm (1.52 × 2.60 in)In-Sight 3800 with no accessories attached: 570 g (20.10 oz). With 45 mm plastic C-Mount cover (COV-380-CMNT-45): 625 g (22.0 oz.) - no lens included. With 60 mm plastic C-Mount cover (COV-380-CMNT-45): 652 g (22.0 oz.) - no lens included. With 60 mm plastic C-Mount cover (COV-380-CMNT-5): 650 g (22.0 oz.) - no lens included. With 75 mm plastic C-Mount cover (COV-380-CMNT-75): 650 g (22.0 oz.) - no lens included. With Multi-Torch Illumination, High Speed Liquid Lens (16 mm), and standard front cover: 840 g (29.6 oz.). With Multi-Torch Illumination, High Speed Liquid Lens (25mm): 2935 g (103.5 oz.) With Multi-Torch-HR Illumination, High Speed Liquid Lens (25mm): 2935 g (103.5 oz.) With White Torch-HR Illumination, High Speed Liquid Lens (25mm): 2930 g (105.1 oz.)Ambient/Environment emperature0° C to 40° C (32° F to 176° F)Autoidty<95% non-condensing							
Material  Die-cast aluminum and zinc housing.    Finish  Painted.    Mounting  Four M3 threaded mounting holes. See Accessories for supported mounts. Pattern: 38.5 × 58.5 mm (1.52 × 2.60 in)    In-Sight 3800 with no accessories attached: 570 g (20.10 oz). With 45 mm plastic C-Mount cover (COV-380-CMNT-45): 625 g (22.0 oz.) - no lens included. With 60 mm plastic C-Mount cover (COV-380-CMNT-5): 650 g (22.9 oz.) - no lens included. With 75 mm plastic C-Mount cover (COV-380-CMNT-5): 650 g (22.9 oz.) - no lens included. With 75 mm plastic C-Mount cover (COV-380-CMNT-5): 650 g (22.9 oz.) - no lens included. With 75 mm plastic C-Mount cover (COV-380-CMNT-5): 650 g (22.9 oz.) - no lens included. With Multi-Torch Illumination, High Speed Liquid Lens (16 mm), and standard front cover: 840 g (29.6 oz.). With Multi-Torch Illumination, High Speed Liquid Lens (25 mm): 2935 g (103.5 oz.) With White Torch-HR Illumination, High Speed Liquid Lens (25 mm): 2935 g (105.1 oz.)    Ambient/Environment remperature  0° C to 40° C (32° F to 176° F)    Storage Temperature  -20° C to 80° C (-4° F to 176° F)    Humidity  <95% non-condensing	•						
Finish  Painted.    Aounting  Four M3 threaded mounting holes. See Accessories for supported mounts. Pattern: 38.5 × 58.5 mm (1.52 × 2.60 in)    In-Sight 3800 with no accessories attached: 570 g (20.10 oz). With 45 mm plastic C-Mount cover (COV-380-CMNT-45): 625 g (22.0 oz.) - no lens included. With 60 mm plastic C-Mount cover (COV-380-CMNT-50): 635 g (22.4 oz.) - no lens included. With 75 mm plastic C-Mount cover (COV-380-CMNT-50): 635 g (22.9 oz.) - no lens included. With 75 mm plastic C-Mount cover (COV-380-CMNT-50): 635 g (22.9 oz.) - no lens included. With 75 mm plastic C-Mount cover (COV-380-CMNT-50): 635 g (22.9 oz.) - no lens included. With Multi-Torch Illumination, High Speed Liquid Lens (16 mm), and dome attachment: 970 g (34.2 oz.). With Multi-Torch Illumination, High Speed Liquid Lens (16 mm), and dome attachment: 970 g (34.2 oz.). With Red Torch-HR Illumination, High Speed Liquid Lens (25mm): 2935 g (103.5 oz.) With White Torch-HR Illumination, High Speed Liquid Lens (25mm): 2930 g (105.1 oz.)    wmbient/Environment emperature  0° C to 40° C (32° F to 104° F)    Storage Temperature  -20° C to 80° C (-4° F to 176° F)    Humidity  >95% non-condensing    Protection  IP67 with all cables properly attached (or the provided connector plug installed), the IP67-rated cover, or Multi Torch attachment properly    Shock (Packaging)  IEC 60068-2-27: 18 shocks (3 shocks in each polarity in each (X, Y, Z) axis) 80 Gs (800 m/s2 at 11 ms, half-sinusoidal) with cables or plugs and a 150 gram or lighter lens attached.	•						
AountingFour M3 threaded mounting holes. See Accessories for supported mounts. Pattern: 38.5 × 58.5 mm (1.52 × 2.60 in)WeightIn-Sight 3800 with no accessories attached: 570 g (20.10 oz). With 45 mm plastic C-Mount cover (COV-380-CMNT-45): 625 g (22.0 oz.) - no lens included. With 60 mm plastic C-Mount cover (COV-380-CMNT-60): 635 g (22.9 oz.) - no lens included. With 75 mm plastic C-Mount cover (COV-380-CMNT-5): 650 g (22.9 oz.) - no lens included. With 75 mm plastic C-Mount cover (COV-380-CMNT-5): 650 g (22.9 oz.) - no lens included. With 75 mm plastic C-Mount cover (COV-380-CMNT-5): 650 g (22.9 oz.) - no lens included. With Multi-Torch Illumination, High Speed Liquid Lens (16 mm), and standard front cover: 840 g (29.6 oz.). With Multi-Torch Illumination, High Speed Liquid Lens (16 mm), and dome attachment: 970 g (34.2 oz.). With Multi-Torch HR Illumination, High Speed Liquid Lens (25mm): 2935 g (103.5 oz.)Ambient/Environment remperature0° C to 40° C (32° F to 104° F)Storage Temperature-20° C to 80° C (-4° F to 176° F)Humidity<95% non-condensing			Zino nousing.				
NeightIn-Sight 3800 with no accessories attached: 570 g (20.10 oz). With 45 mm plastic C-Mount cover (COV-380-CMNT-45): 625 g (22.0 oz.) - no lens included. With 60 mm plastic C-Mount cover (COV-380-CMNT-60): 635 g (22.4 oz.) - no lens included. With 75 mm plastic C-Mount cover (COV-380-CMNT-75): 650 g (22.9 oz.) - no lens included. With 75 mm plastic C-Mount cover (COV-380-CMNT-75): 650 g (22.9 oz.) - no lens included. With Multi-Torch Illumination, High Speed Liquid Lens (16 mm), and standard front cover: 840 g (29.6 oz.). With Multi-Torch Illumination, High Speed Liquid Lens (16 mm), and dome attachment: 970 g (34.2 oz.). With Weith Corch-HR Illumination, High Speed Liquid Lens (25mm): 2935 g (103.5 oz.) With White Torch-HR Illumination, High Speed Liquid Lens (25mm): 2930 g (105.1 oz.)Ambient/Environment Temperature0° C to 40° C (32° F to 104° F)Storage Temperature-20° C to 80° C (-4° F to 176° F)4umidity<95% non-condensingProtectionIP67 with all cables properly attached (or the provided connector plug installed), the IP67-rated cover, or Multi Torch attachment properly IEC 60068-2-27: 18 shocks (3 shocks in each polarity in each (X, Y, Z) axis) 80 Gs (800 m/s2 at 11 ms, half-sinusoidal) with cables or plugs and a 150 gram or lighter lens attached.		Four M3 threaded mounting holes. See Accessories for supported mounts.					
Temperature  0° C to 40° C (32° F to 104° F)    Storage Temperature  -20° C to 80° C (-4° F to 176° F)    Humidity  <95% non-condensing		In-Sight 3800 with no accessories attached: 570 g (20.10 oz). With 45 mm plastic C-Mount cover (COV-380-CMNT-45): 625 g (22.0 oz.) - no lens included. With 60 mm plastic C-Mount cover (COV-380-CMNT-60): 635 g (22.4 oz.) - no lens included. With 75 mm plastic C-Mount cover (COV-380-CMNT-75): 650 g (22.9 oz.) - no lens included. With 75 mm plastic C-Mount cover (COV-380-CMNT-75): 650 g (22.9 oz.) - no lens included. With Multi-Torch Illumination, High Speed Liquid Lens (16 mm), and standard front cover: 840 g (29.6 oz.). With Multi-Torch Illumination, High Speed Liquid Lens (16 mm), and dome attachment: 970 g (34.2 oz.). With Red Torch-HR Illumination, High Speed Liquid Lens (25mm): 2935 g (103.5 oz.)					
Storage Temperature  -20° C to 80° C (-4° F to 176° F)    Humidity  <95% non-condensing		0° C to 40° C (32° F to 104° F)					
Humidity    <95% non-condensing	Storage Temperature	-20° C to 80° C (-4° F	to 176° F)				
Shock (Packaging) IEC 60068-2-27: 18 shocks (3 shocks in each polarity in each (X, Y, Z) axis) 80 Gs (800 m/s2 at 11 ms, half-sinusoidal) with cables or plugs and a 150 gram or lighter lens attached.	lumidity	<95% non-condensing					
Shock (Packaging) IEC 60068-2-27: 18 shocks (3 shocks in each polarity in each (X, Y, Z) axis) 80 Gs (800 m/s2 at 11 ms, half-sinusoidal) with cables or plugs and a 150 gram or lighter lens attached.	Protection	IP67 with all cables properly attached (or the provided connector plug installed), the IP67-rated cover, or Multi Torch attachment properly installed.					
		IEC 60068-2-27: 18 shocks (3 shocks in each polarity in each (X, Y, Z) axis) 80 Gs (800 m/s2 at 11 ms, half-sinusoidal) with cables or cable					
Storage) and a 150 gram or lighter lens attached.	/ibration (Shipping and Storage)	IEC 60068-2-6: vibration test in each of the three main axis for 2 hours at 10 Gs (10 to 500 Hz at 100 m/s2 / 15 mm) with cables or cable					

## Field of view diagrams\*



\*Field of view diagrams are based on the minimum and maximum focus distances of the High Speed Liquid Lens. If using a High Speed Liquid Lens with the Multi Torch light accessory, the system will perform best at distances between 150–500 mm (5.9–19.7 in) in terms of light intensity/uniformity.



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\*Field of view diagrams are based on the minimum and maximum focus distances of the High Speed Liquid Lens. If using a High Speed Liquid Lens with the Multi Torch light accessory, the system will perform best at distances between 150–500 mm (5.9–19.7 in) in terms of light intensity/uniformity.

## Product IDs and descriptions\*

	Product ID	Resolution	Mono/Color	Performance	Light	Lens	Cover	Toolset
	IS3801MP-00001-SA	1.6 MP	Mono	Performance	None	None	None	EB/SS <sup>1</sup> , all tools
and a								
101	IS3801CP-00001-SA	1.6 MP	Color	Performance	None	None	None	EB/SS, all tools
	IS3801MS-00001-SA	1.6 MP	Mono	Standard	None	None	None	EB/SS, all tools
	IS3801CS-00001-SA	1.6 MP	Color	Standard	None	None	None	EB/SS, all tools
The second	IS3801MP-14621-SA	1.6 MP	Mono	Performance	Multi Torch	16 mm HSLL	Diffused	EB/SS, all tools
10-3	IS3801CP-14621-SA	1.6 MP	Color	Performance	Multi Torch	16 mm HSLL	Diffused	EB/SS, all tools
50	IS3801MP-14821-SA	1.6 MP	Mono	Performance	Multi Torch	24 mm HSLL	Diffused	EB/SS, all tools
-	IS3801CP-14821-SA	1.6 MP	Color	Performance	Multi Torch	24 mm HSLL	Diffused	EB/SS, all tools
and a	IS3803MP-00001-SA	3.2 MP	Mono	Performance	None	None	None	EB/SS, all tools
1	IS3803CP-00001-SA	3.2 MP	Color	Performance	None	None	None	EB/SS, all tools
	IS3803MS-00001-SA	3.2 MP	Mono	Standard	None	None	None	EB/SS, all tools
	IS3803CS-00001-SA	3.2 MP	Color	Standard	None	None	None	EB/SS, all tools
The second	IS3803MP-14621-SA	3.2 MP	Mono	Performance	Multi Torch	16 mm HSLL	Diffused	EB/SS, all tools
000	IS3803CP-14621-SA	3.2 MP	Color	Performance	Multi Torch	16 mm HSLL	Diffused	EB/SS, all tools
Ser.	IS3803MP-14821-SA	3.2 MP	Mono	Performance	Multi Torch	24 mm HSLL	Diffused	EB/SS, all tools
·	IS3803CP-14821-SA	3.2 MP	Color	Performance	Multi Torch	24 mm HSLL	Diffused	EB/SS, all tool
	IS3805MP-00001-SA	5 MP	Mono	Performance	None	None	None	EB/SS, all tool
THE REAL PROPERTY IN	IS3805CP-00001-SA	5 MP	Color	Performance	None	None	None	EB/SS, all tool
	IS3805MS-00001-SA	5 MP	Mono	Standard	None	None	None	EB/SS, all tools
	IS3805CS-00001-SA	5 MP	Color	Standard	None	None	None	EB/SS, all tools
TP	IS3805MP-14621-SA	5 MP	Mono	Performance	Multi Torch	16 mm HSLL	Diffused	EB/SS, all tools
-	IS3805CP-14621-SA	5 MP	Color	Performance	Multi Torch	16 mm HSLL	Diffused	EB/SS, all tools
$(\mathcal{A})$	IS3805MP-14821-SA	5 MP	Mono	Performance	Multi Torch	24 mm HSLL	Diffused	EB/SS, all tools
	IS3805CP-14821-SA	5 MP	Color	Performance	Multi Torch	24 mm HSLL	Diffused	EB/SS, all tools
	IS3808MX-00001-SA	8 MP	Mono	Max	None	None	None	EB/SS, all tools
-	IS3808CX-00001-SA	8 MP	Color	Max	None	None	None	EB/SS, all tools
	IS3808MS-00001-SA	8 MP	Mono	Standard	None	None	None	EB/SS, all tools
	IS3808CS-00001-SA	8 MP	Color	Standard	None	None	None	EB/SS, all tool
	IS3812MX-00001-SA	12 MP	Mono	Max	None	None	None	EB/SS, all tool
STATE OF	IS3812CX-00001-SA	12 MP	Color	Max	None	None	None	EB/SS, all tools
<b>D</b>	IS3812MS-00001-SA	12 MP	Mono	Standard	None	None	None	EB/SS, all tools
	IS3812CS-00001-SA	12 MP	Color	Standard	None	None	None	EB/SS, all tools
	IS3816MX-00001-SA	16 MP	Mono	Max	None	None	None	EB/SS, all tool
	IS3816CX-00001-SA	16 MP	Color	Max	None	None	None	EB/SS, all tool
	IS3816MS-00001-SA	16 MP	Mono	Standard	None	None	None	EB/SS, all tool
	IS3816CS-00001-SA	16 MP	Color	Standard	None	None	None	EB/SS, all tool
	IS3808MX-22321-SA	8 MP	Mono	Max	Red Torch-HR	25 mm HSLL - HR	Diffused	EB/SS, all tools
	IS3808CX-21321-SA	8 MP	Color	Max	White Torch-HR	25 mm HSLL - HR	Diffused	EB/SS, all tools
	IS3812MX-22321-SA	12 MP	Mono	Max	Red Torch-HR	25 mm HSLL - HR	Diffused	EB/SS, all tool
	IS3812CX-21321-SA	12 MP	Color	Max	White Torch-HR	25 mm HSLL - HR	Diffused	EB/SS, all tools
	IS3816MX-22021-SA	16 MP	Mono	Max	Red Torch-HR	None	Diffused	EB/SS, all tools
	IS3816CX-21021-SA	16 MP	Color	Max	White Torch-HR	None	Diffused	EB/SS, all tools

\*This table includes only the most common product models. To get information on other available models, please contact Cognex Sales at cognex.com/contact-sales.

## **Components and accessories**

Lights		
	Product ID	Description
(3)	380-TORCH-MULTI-AF	Multi Torch Accessory Kit for autofocus lenses. Includes: Multi Torch illumination module, mount for illumination module (CLN-CXXFXX- HSLL High-Speed Liquid Lenses only), diffused cover, illumination PCB, 2 mm hex tool.
	380-TORCH-MULTI-MF1	Multi Torch Accessory Kit for manual focus lenses. Includes: Multi Torch illumination module, mount for illumination module (CLN-CXXFXX manual lenses only), diffused cover, illumination PCB, 2 mm hex tool.
	380-TORCH-RED-HR	Red Torch-HR Accessory kit for high-resolution models. Includes Red Torch-HR illumination module, diffused cover, illumination cable, 2mm hex tool.
	380-TORCH-WHITE-HR	White Torch-HR Accessory kit for high-resolution models. Includes White Torch-HR illumination module, diffused cover, illumination cable, 2mm hex tool.

Front Covers					
	Product ID	Description			
<b>(</b> )	380-TORCH-COVDIF	Multi Torch diffused front cover			
(a)	380-TORCH-COVPOL1	Multi Torch cross-polarized front cover			
	380-TORCH-COVCLR <sup>1</sup>	Multi Torch clear front cover			
	380-TORCH-DOME1	Multi Torch dome attachment			
0	380-TORCH-HR-COVDF	Torch-HR diffused front cover			
0	380-TORCH-HR-COVPL	Torch-HR cross-polarized front cover			
0	380-TORCH-HR-COVCL	Torch-HR clear front cover			
Bandpass	Bandpass Filters				
	Product ID	Description			

	Product ID	Description		
	380-TORCH-BP4501	Blue bandpass filter for Multi Torch		
	380-TORCH-BP6351	Red bandpass filter for Multi Torch		

1 Compatible with IS3801/3803/3805.

- 2 Compatible with IS3801.
- 3 Compatible with IS3808/3812.
- 4 Compatible with IS3808/3812/3816.

Mounting Brackets					
	Product ID	Description			
K	BKT-INS-01	Mounting bracket with M3, M4 and 1/4 - 20 mounting holes			
	ISB-7000-7K	Converter mounting bracket with M3 socket head screws/wrench			
	ISB-7000-5K	Converter mounting bracket with Phillips flat head M3 screws and M4 screws			
Ŋ.	DMBK-PVT-HPIT-380	U-shaped mounting bracket with M6 mounting holes for Torch-HR models			



Lenses Product ID

CLN-C16F8FS-HSLL<sup>1</sup> CLN-C24F6FS-HSLL<sup>1</sup>









	Description
	16 mm HSLL
	24 mm HSLL
	16 mm manual focus lens
	24 mm manual focus lens
3	16 mm HSLL - high resolution
3	25 mm HSLL - high resolution
3	35 mm HSLL - high resolution
	8 mm Moritex HR series lens
	12 mm Moritex HR series lens
	16 mm Moritex HR series lens
	25 mm Moritex HR series lens
	35 mm Moritex HR series lens
	50 mm Moritex HR series lens
	6 mm Moritex UR series lens
	8 mm Moritex UR series lens
	12 mm Moritex UR series lens
	16 mm Moritex UR series lens
	25 mm Moritex UR series lens
	35 mm Moritex UR series lens
	50 mm Moritex UR series lens
	6 mm Moritex SR series lens
	12 mm Moritex SR series lens
	16 mm Moritex SR series lens
	25 mm Moritex SR series lens
	35 mm Moritex SR series lens
	50 mm Moritex SR series lens

Lens Covers				
	Product ID	Description		
	COV-380-CMNT-45	45 mm plastic lens cover		
	COV-380-CMNT-60	60 mm plastic lens cover		
	COV-380-CMNT-75	75 mm plastic lens cover		
٢	COV-7000-CMNT-LGX	30 mm lens cover extender		

Cables		
	Product ID	Description
-	IVSL-5PM12-JXXX	External light cable, yellow (300 mm, 500 mm, 1000 mm, 2000 mm)
0	IVSL-M12-NSB-XXX	External light cable, black (300 mm, 1000 mm, 2000 mm)
-0	CCB-M12LTF-XX	External light cable, gray (0.5 m, 1 m, 2 m, 5 m)
	ICQ-CB-0.5-IFL-M12	Black M12 to M12 cable with a small in-line capacitor (2 m)
	CCB-84901-2001-XX	Ethernet cable, X-coded M12-8 to RJ- 45 (2 m, 5 m, 10 m, 15 m, 30 m)
	CCB-84901-2RBT-XX	Ethernet cable, X-coded M12-8 to RJ-45 (2 m, 5 m, 10 m)
0	CCB-PWRIO-XX	Breakout cable, M12-12 to flying lead (5 m, 10 m, 15 m)

VisionView Web				
	Product ID	Description		
	VVW-P	VV Web HDMI Panel		
	VVW-H-AU	CFKIT, VV Web HDMI with AU PS		
	VVW-H-EU	CFKIT, VV Web HDMI with EU PS		
	VVW-H-NOM	CFKIT, VV Web HDMI with NOM PS		
	VVW-H-UK	CFKIT, VV Web HDMI with UK PS		
	VVW-H-US	CFKIT, VV Web HDMI with US PS		

## Dimensions Units: mm, [in]

## In-Sight 3800 base unit

#### **Download CAD files**













#### In-Sight 3800 with Dome

#### Download CAD files







## In-Sight 3800 with C-mount

#### 45 mm C-mount cover

#### **Download CAD files**





#### 60 mm C-mount cover

#### **Download CAD files**



#### 75 mm C-mount cover



#### In-Sight 3800 with Torch-HR

#### **Download CAD files**



#### Cable bend radius



TYPICAL: POWER CABLE Ø7.1 [0.28] ETHERNET CABLE Ø7.1 [0.28] LIGHT CABLE Ø7.5 [0.3]



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Lit. No. IS3800DS-02-2025

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