

IN-SIGHT LASER PROFILER

The In-Sight® laser profiler is a measurement system used to verify that a part's dimensions meet specifications. The In-Sight laser profiler is configured using the In-Sight EasyBuilder® user interface. This intuitive, easy-to-use software makes it simple for manufacturing and quality engineers to develop, deploy and support high accuracy measurements on the factory floor.

The In-Sight laser profiler is set up and deployed in 4 easy steps:

1. Acquire Profile

The ability to produce an accurate profile of your part is critical to the success of any application. With a click of a button, profile optimization technology renders the most accurate outline of your part.

2. Locate Object

An inconsistent presentation of a part can directly result in measurement errors. Sophisticated object detection technology minimizes the need for costly fixturing and ensures measurements are performed in the correct location.

3. Measure

Factory engineers will be up and running within minutes using the In-Sight EasyBuilder user interface. The flexible In-Sight laser profiler toolset extracts features, constructs reference points and verifies whether a product has been manufactured within tolerance.

4. Communicate Results

Once results have been achieved, measurements are sent to a PLC or an overall pass/fail is sent directly as a discrete output.

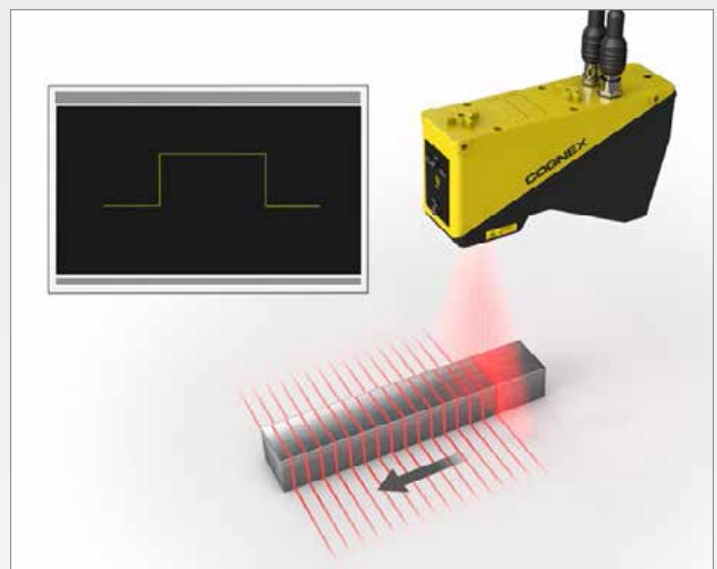


DS1000 Series Laser
Displacement Sensor

In-Sight VC200 Multi Smart
Camera Vision Controller

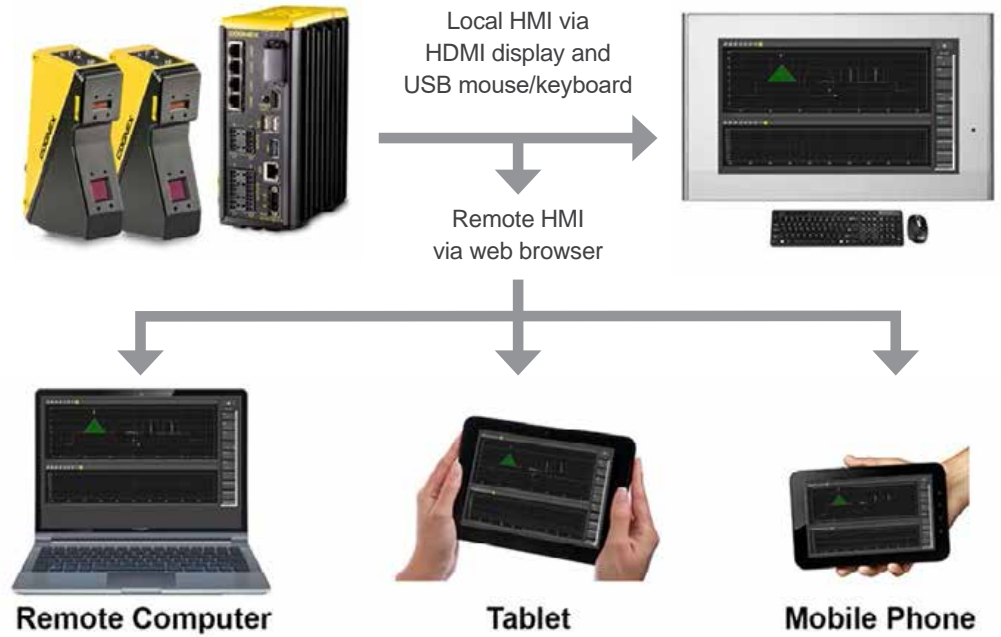
How a Laser Profiler Works

The In-Sight laser profiler generates an accurate 2D profile of an object along a laser line. The 2D profile provides precise geometric information that can be used to verify that an object is defect-free and meets specifications. The In-Sight laser profiler is easy to use and factory calibrated to ensure accurate and repeatable measurement results.



Simultaneous HMI Access

The In-Sight laser profiler offers mobile, platform-independent visualization for accessing HMIs (human machine interfaces) from anywhere on the network. An HTML-based user interface allows users to monitor production line activity from any laptop, tablet, smart phone or other mobile device.



In-Sight VC200 Vision Controller

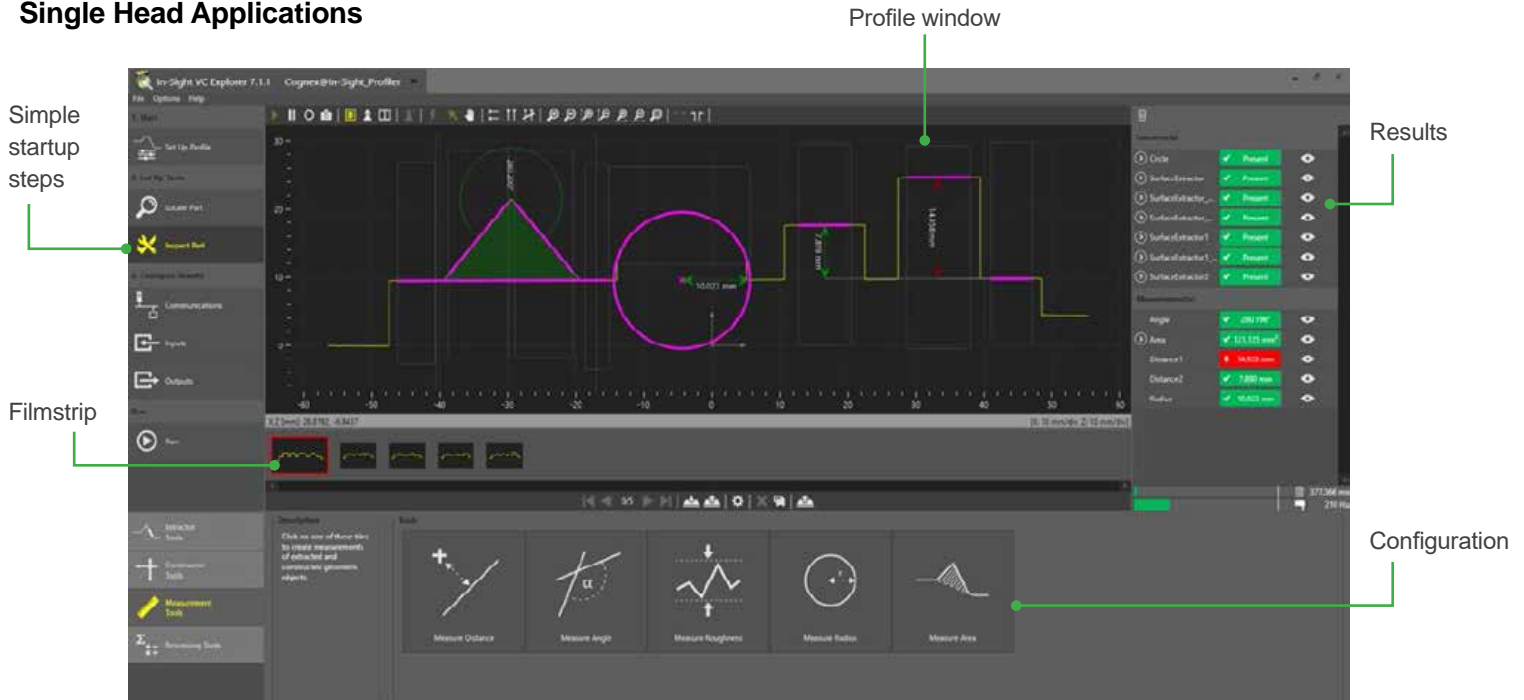
The In-Sight laser profiler is powered by the industrial In-Sight VC200 vision controller which stores and runs your measurement application.



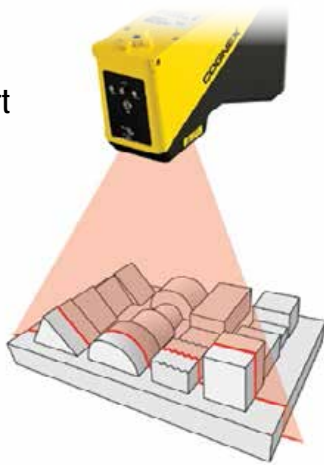
In-Sight Profiler Software and Vision Toolsets

The In-Sight laser profiler uses In-Sight VC Explorer with EasyBuilder to set up and monitor a variety of measurements. The intuitive interface guides operators through a step-by-step setup process allowing both novice and experienced users to configure measurement applications quickly and easily.

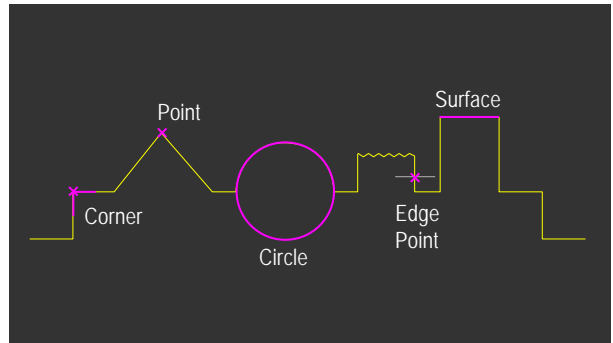
Single Head Applications



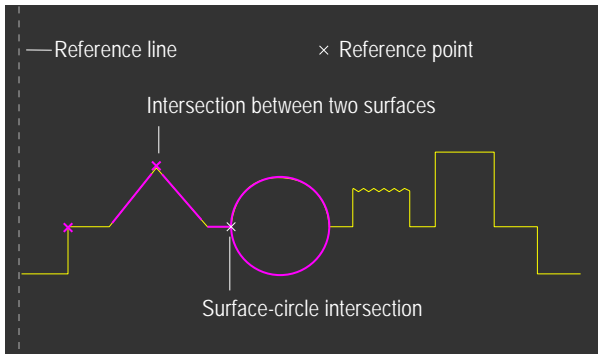
Sample part



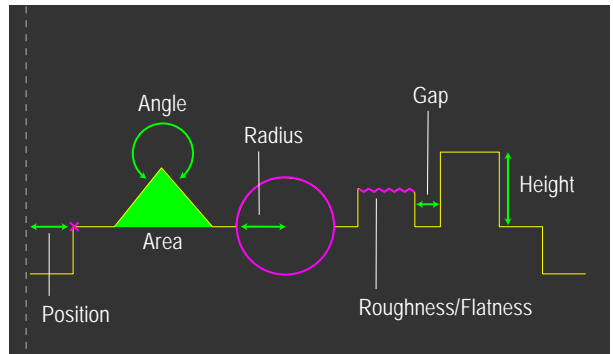
Extraction tools



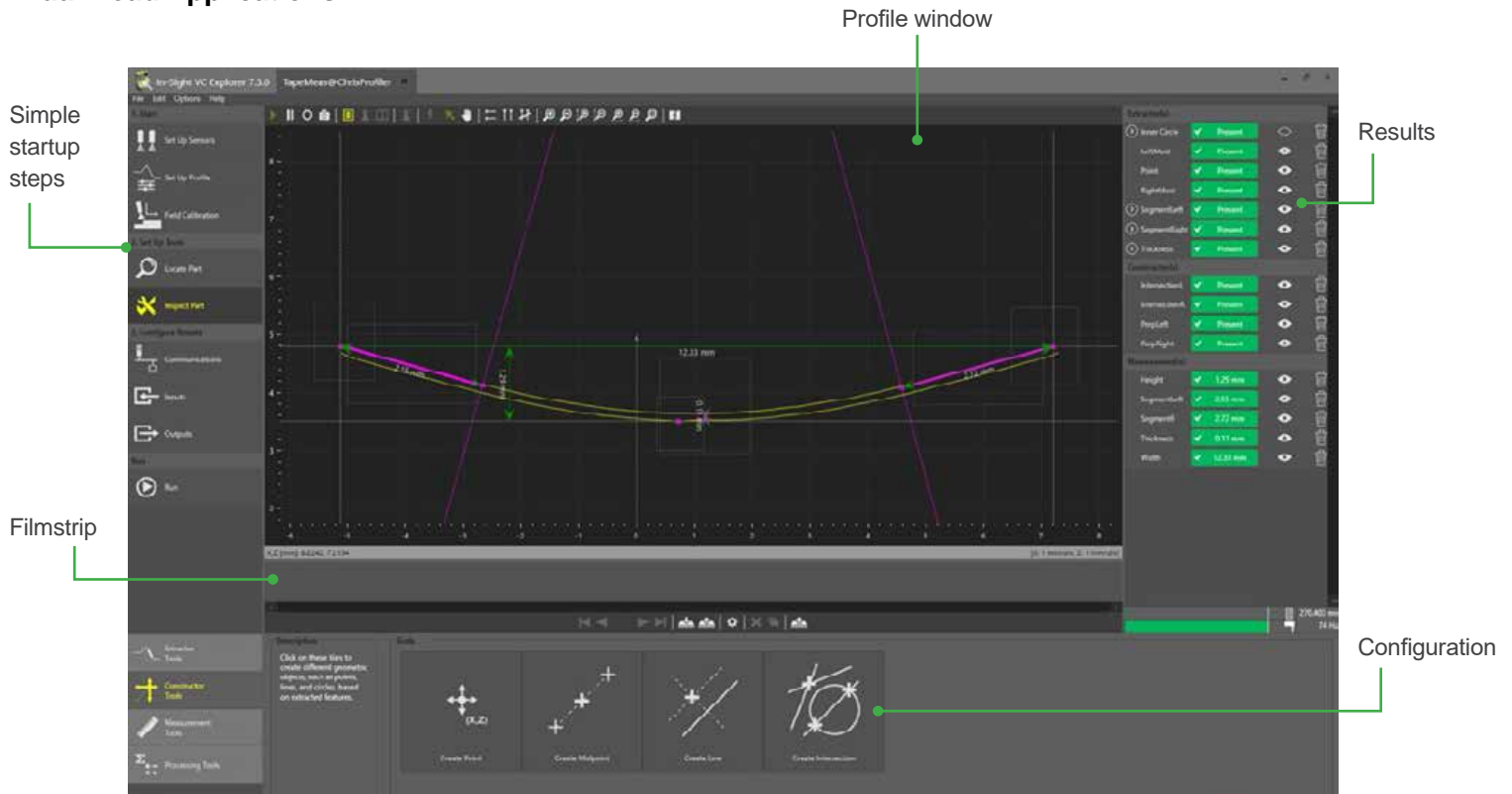
Construction tools



Measurement tools



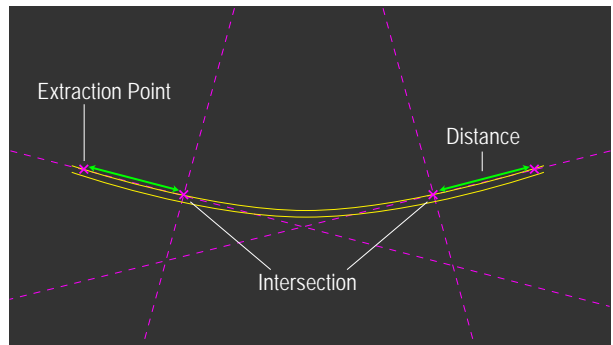
Dual Head Applications



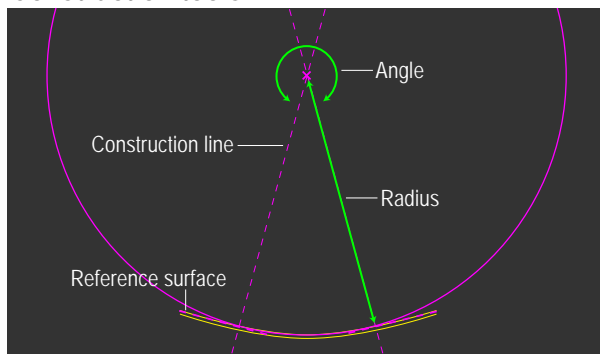
Sample part



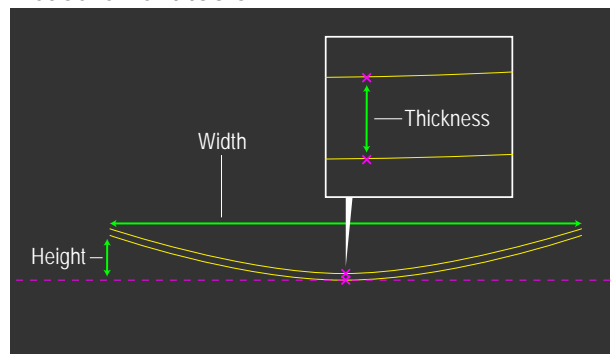
Extraction tools



Construction tools

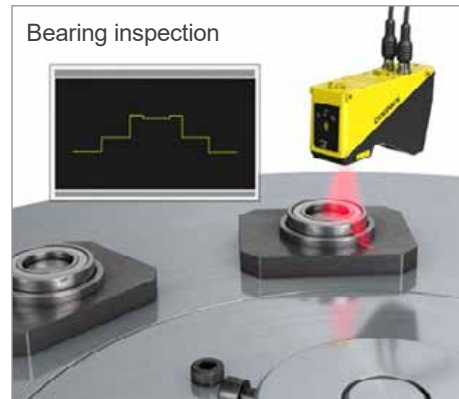
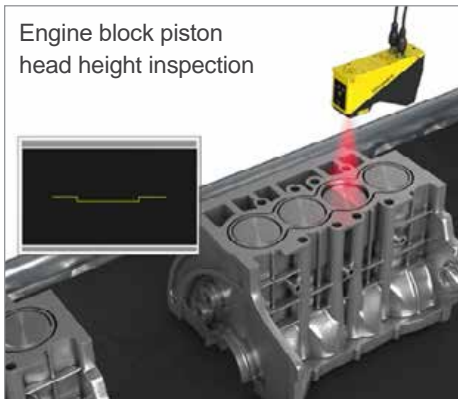
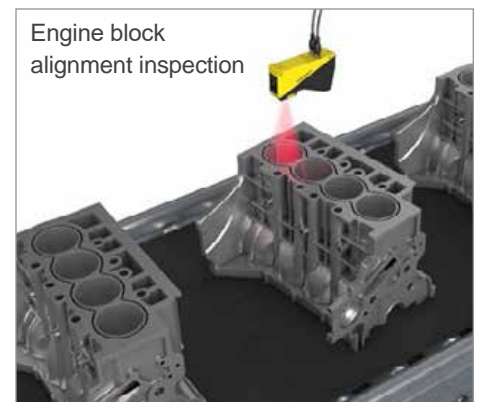
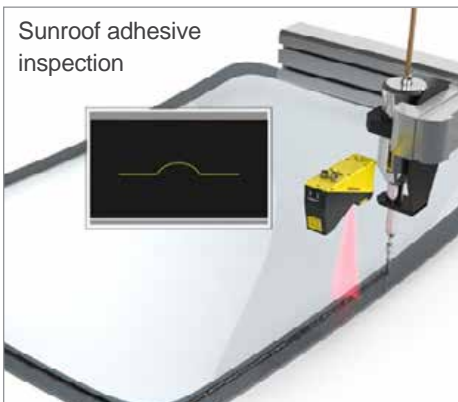
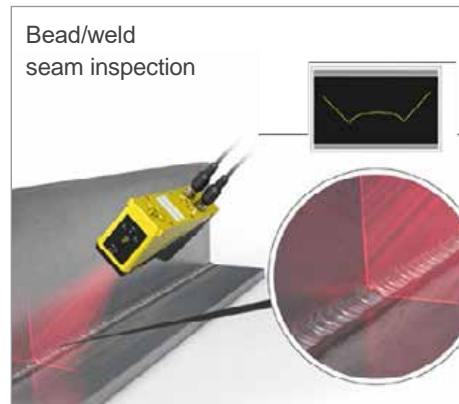
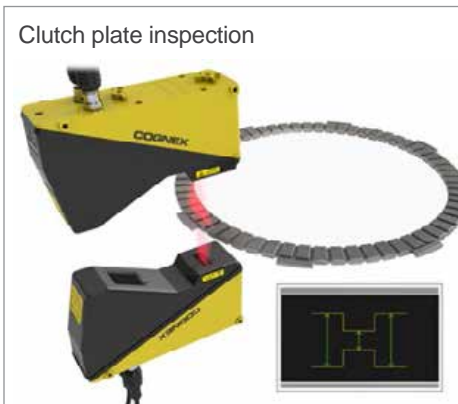
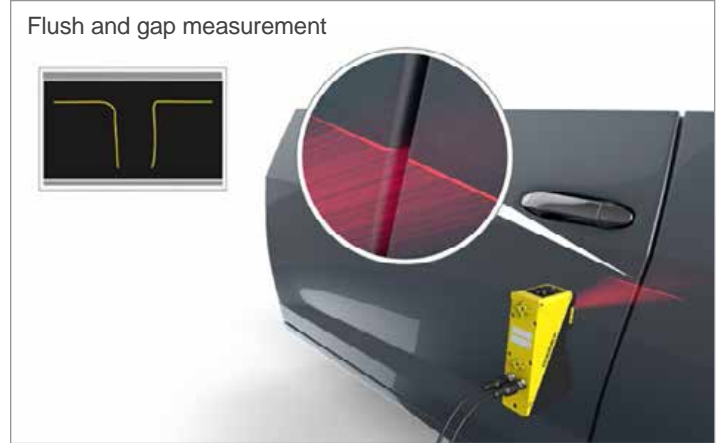
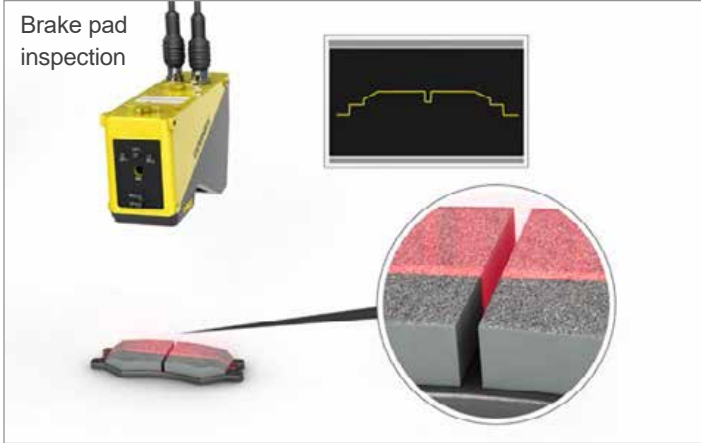


Measurement tools

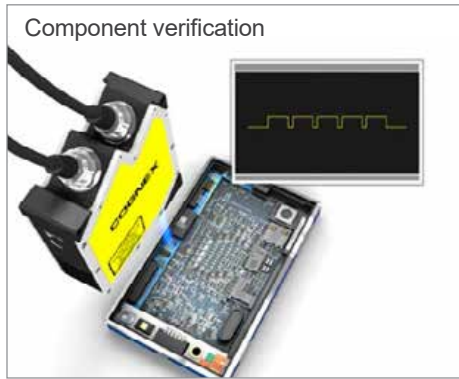


In-Sight Laser Profiler Solutions

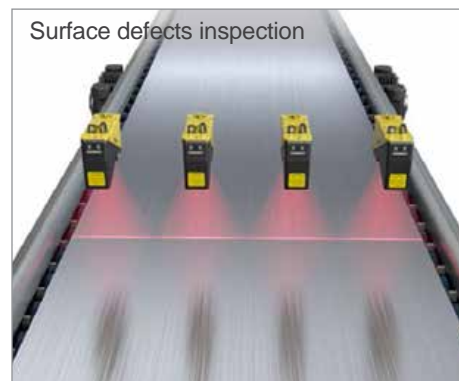
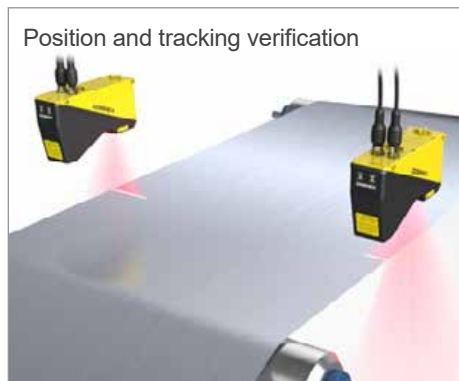
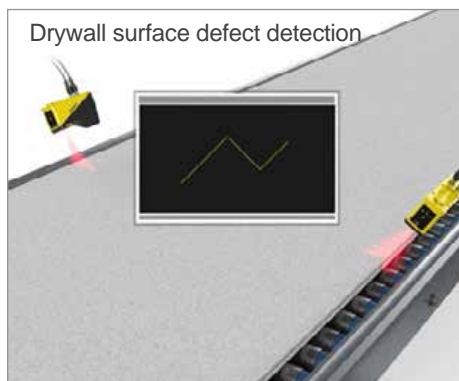
Automotive solutions



Consumer electronics solutions



Consumer products solutions



Food/beverage solutions



SPECIFICATIONS

| | Vision Controller |
|------------------------------------|---|
| Supported Cognex devices | DS1050, DS1101, DS1300, DS925B, DS910B |
| Job/program memory | 8 GB non-volatile flash memory. Unlimited storage via remote network device |
| Image processing memory | 2 GB SDRAM |
| Cooling system | Fanless design |
| Inputs | 8 optically isolated discrete inputs |
| Outputs | 16 optically isolated discrete outputs |
| Camera ports ¹ | 2 RJ-45 dedicated Ethernet ports for connecting directly to support laser displacement sensor heads, additionally supplying Power over Ethernet ⁵ |
| LAN port ² | 1 RJ-45 Ethernet port, 10/100/1000 BaseT with auto MDIX. IEEE 802.3 TCP/IP Protocol. Dedicated port for connecting to wide area network |
| USB ports ³ | 1 host USB 3.0 port (5 Gb/sec.) and 2 host USB 2.0 ports (480 Mb/sec.) ports for connecting storage device. USB drives should be formatted with a FAT32 file system |
| SD card slot | 1 SD card slot for saving images, run time files and results. SD cards should be UHS-I or UHS-II and formatted with a FAT32 file system |
| Video out port | 1 locking HDMI port that provides connection to a display device |
| I/O terminal connectors | 16–26 AWG, solid or stranded wire. Torque 0.25 Nm (2.2 in-lb) |
| 24 VDC power connector | 14–18 AWG, solid or stranded wire. Torque 0.6 Nm (5.3 in-lb) |
| Status LEDs | PWR LED, LED 1, LED 2 |
| Housing | Aluminum, steel sheet metal, injection-molded housing |
| Mounting | Four bottom and four backside M4 x 0.7 threaded mounting holes. The vision controller may be optionally mounted using the accessory wall mounting bracket (BKT-WALL-VC200-01) or to a 35x15 mm DIN rail, using the accessory DIN rail mounting bracket (BKT-DIN-VC200-01) |
| Dimensions | 178.8 mm (7.04 in) x 142.1 mm (5.59 in) x 75.1 mm (2.96 in) |
| Weight | 1.45 kg (3.2 lb) |
| Current | 3.5 A (maximum) |
| Voltage | 24 VDC ±10% |
| Power consumption | 84 W (maximum) |
| Operating temperature ⁴ | 0 °C to 45 °C (32 °F to 113 °F) |
| Storage temperature | -30 °C to 80 °C (-22 °F to 176 °F) |
| Humidity | 10%–85%, non-condensing (Operating and Storage) |
| Altitude | 2,000 m (6565 ft) |
| Protection | IP30 |
| Shock (storage and shipment) | 30 G, per IEC 60068-2-7EA |
| Vibration (storage and shipment) | 2 G, 2 hrs/axis (10-500 Hz) per IEC 60068-2-6, FC |
| Regulatory compliance | CE, FCC, KCC, TÜV SÜD NRTL, RoHS |

¹ To ensure reliable communication using 1000 BaseT operation, the Ethernet cable must not exceed 100 meters.


² To ensure reliable communication using 1000 BaseT operation, the Ethernet cable must not exceed 100 meters.

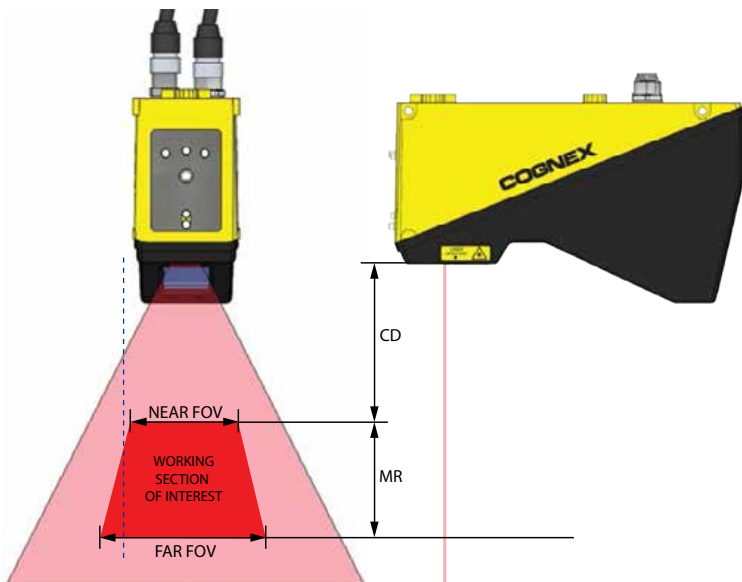
³ Maximum USB port speeds are listed. Actual speeds are dependent on the USB device, which are typically lower.

⁴ To ensure sufficient ventilation, the vision controller must be mounted with 50 mm of clearance above the vision controller and 50 mm of clearance on both sides. If an adjacent device also produces heat, additional space or cooling is required if air space around the vision controller exceeds 45 °C (113 °F).

⁵ DS925B and DS910B heads only.

SPECIFICATIONS


| | DS1050, DS1101 and DS1300 |
|-------------------------------|--|
| Dimensions | 93.3 mm to 115.2 mm (H) x 50 mm (W) x 167.06 mm (L) |
| Weight | 700 g |
| Operating temperature | 0 °C to 50 °C (32 °F to 113 °F) |
| Storage temperature | -10 °C to 60 °C (-14 °F to 140 °F) |
| Maximum humidity | 85% (non-condensing) |
| Housing | IP65 (with Cognex recommended IP65 Ethernet and power I/O cables) |
| Shock | 50 gs (11 ms half-Sine pulse) |
| Vibration | 8 gs (10–500 Hz for 30 minutes) |
| Discrete I/O operating limits | Trigger input voltage limits: -24 VDC – +24 VDC Input ON: > 10 VDC (>6 mA) Input OFF: < 2 VDC (<1.5 mA) |
| Encoder input specifications | Differential: A+/B+: 5–24V (50 kHz max) A-/B-: Inverted (A+/B+) Single-ended: A+/B+: 5–24V (50 kHz max) A-/B-: +0 VDC=½(A+/B+) |
| Power supply | Voltage: +24 VDC (22–26 VDC) Current: 500 mA max |
| Scan rate | 2.25 kHz |
| Software | In-Sight VC Explorer with EasyBuilder |
| Ethernet | Gigabit Ethernet interface Integrated link and traffic LEDs Standard M12-8 female connector |
| Certifications |  |
| Accessories | Ethernet cable: 5m, IP65-rated Power: + I/O + Encoder cable, IP65-rated Mounting bracket Stainless steel enclosure, IP69K-rated for the food industry |
| VC200 Controller | High-speed embedded processor Precision I/O Real Time Communications 179 mm x 142 mm x 75 mm |

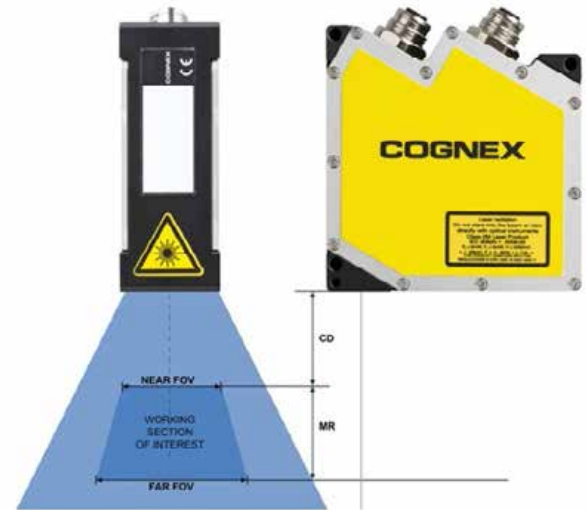


MODEL COMPARISON

| | DS1050 | DS1101 | DS1300 |
|-------------------------|-------------|-------------|-------------|
| Near Field of View (mm) | 43 | 64 | 90 |
| Far Field of View (mm) | 79 | 162 | 410 |
| Clearance Distance (mm) | 87 | 135 | 180 |
| Measurement Range (mm) | 76 | 220 | 725 |
| Laser Class | 2M | 2M | 2M |
| Resolution X (mm) | 0.042–0.077 | 0.063–0.158 | 0.088–0.410 |
| Resolution Z (mm) | 0.004–0.014 | 0.010–0.052 | 0.016–0.265 |
| Linearity | ±0.06% FS | ±0.08% FS | ±0.23% FS |

SPECIFICATIONS

| | |
|------------------------------|---|
| | DS910B and DS925B |
| Dimensions | 96 mm (H) x 33 mm (W) x 85 mm (L) |
| Weight | 380 g |
| Operating temperature | 0 °C to 45 °C (32 °F to 113 °F) |
| Storage temperature | -20 °C to 70 °C (-4 °F to 158 °F) |
| Maximum humidity | 5–95% (non-condensing) |
| Housing | IP65 (with Cognex recommended IP65 Ethernet and power I/O cables) |
| Laser power | 8 mW (class 2M) 405 nm wavelength |
| Encoder input specifications | Single-ended quadrature encoder. A+/B+ voltage limits: +5 VDC (TTL); +30 VDC (HTL) Input ON: > 2.4 VDC (TTL); > 11 VDC (HTL) Input OFF: < 0.8 VDC (TTL); < 3 VDC (HTL) A-/B-: +0 VDC |
| Power supply | Voltage: +24 VDC (11–30 VDC) Current: 500 mA max IEEE 802.3af Power over Ethernet |
| Scan rate | 1.39 kHz |
| Software | In-Sight VC Explorer with EasyBuilder |
| Ethernet | Gigabit Ethernet interface Standard M12-8 female connector |
| Certifications |  |
| Accessories | Ethernet cable: 5 m, IP65-rated Power: + I/O + Encoder cable, IP65-rated |
| VC200 Controller | High-speed embedded processor Precision I/O Real Time Communications 179 mm x 142 mm x 75 mm |



MODEL COMPARISON

| | DS910B | DS925B |
|-------------------------|---------------|---------------|
| Near Field of View (mm) | 9.4 | 23.4 |
| Far Field of View (mm) | 10.7 | 29.1 |
| Clearance Distance (mm) | 52.5 | 53.5 |
| Measurement Range (mm) | 8 | 25 |
| Laser Class | 2M | 2M |
| Resolution X (mm) | 0.0073–0.0084 | 0.0183–0.0227 |
| Resolution Z (mm) | 0.001 | 0.002 |
| Linearity | ±0.10% FS | ±0.17% FS |

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