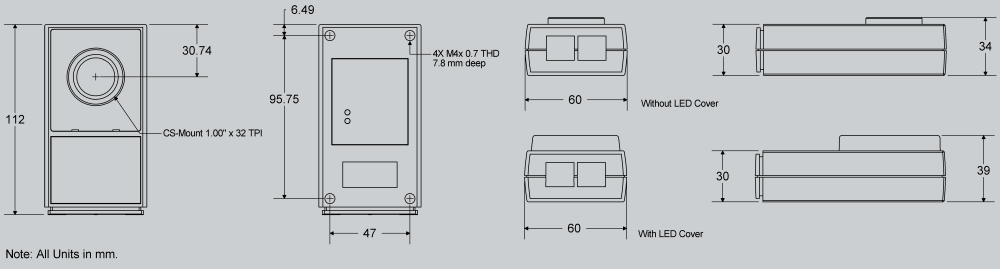
Legend 500 Series

Model 510 SmartImage Sensor

Legend 510 specs

Size	112mm x 60mm x 30mm (not including lens)
Mounting	Four M4 threaded holes (on the back of unit), 7.8mm depth
Weight	170g/6oz (without lens or integrated light)
Power Requirements	24V DC, 210mA (or minimum 5W supply), regulated and isolated. Additional 5W required for integrated light option. Additional power required for DVT LED lighting.
Operating Temperatures	Operating Temperature: 0-45º C, 32-113º F
Image Sensor	5.0mm x 3.7mm (1/3" format) CMOS, 640 x 480 pixel resolution, 7.8µm x 7.8µm pixels
Electronic Shuttering	10 µs – 1 second exposure times
Optics	CS mount standard, C mount-capable with optional adaptor
External Port	RJ-45 for 10/100 Mbps Ethernet communications, 10 pin keyed modular connector for power and digital I/O
Digital I/O	24V DC regulated, 8 configurable inputs and outputs, NPN (current sinking) inputs, PNP (current sourcing) outputs, active high signals. Inputs can sink up to 1.5mA and outputs source a maximum of 50 mA
Certifications	CE certified



Note: All Units in mm.

Communications

DVT systems are independent information sources on your factory floor. They can make decisions locally based on the outcome of inspections while passing information about that process to other devices on the factory network. The Legend Family can talk to any device with the aid of a computer, but the true power of the system is in exchanging data directly between devices.

Physical Networks Supported
- Ethernet
- DeviceNet*
- Profibus*

Protocols Supported Over Ethernet
- Raw TCP**
- Modbus/TCP
- Rockwell EtherNet/IP

Built-in Industrial Drivers
- ABB
- Fanuc
- Motoman
- Kuka
- Kawasaki
- Reis
- Yamaha
- IAI
- Others

*Requires DVT SmartLink
**Many Industrial Controllers Support Raw TCP either through ethernet or through an ethernet to serial converter (Delta Tau, Compumotor, CRS, IAI, Toshiba, etc)

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BRO-332-A0

Legend 500 Series

Model 510 SmartImage Sensor

$1,995

Includes FREE software, upgrades, training and online diagnostics

At just $1,995, the Legend 510 SmartImage Sensor delivers 100% inspection at the lowest cost ever known in the machine vision industry for a full featured vision system. Built-in Ethernet connectivity gives you the power to integrate the Legend 510 SmartImage Sensor into your existing factory network and delivers remote access for online diagnostics and inspection management from any Internet connection!

DVT has combined the industry's latest CMOS imaging technology with FrameWork software to create an easy-to-use but powerful inspection tool. The Legend 510 is a self-contained vision system that does not require a PC or separate processor. Optional integrated lighting and a unique lens configuration mounts easily in restricted spaces, and can cover a wide range of inspections.

The Legend 510 can measure, count, find features, compare patterns. Communication drivers to robotics, PC-based control systems and other automation devices are built in to the Legend 510.

*Optional lighting shown

Industries using DVT SmartImage Sensors:

- Automotive
- Biomedical
- Food/Beverage
- Plastics
- Pharmaceutical
- Packaging
- Semiconductor

Typical Inspections:

- Presence/Absence of parts in an assembly
- Presence/Absence of features in a part
- Counting and sorting of parts
- Precision measurement

DVT

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FrameWork

User Interface Software

FREE!
Free software, upgrades, training and online diagnostics

FrameWork, the software that manages and operates DVT SmartImage Sensors, is a Windows®-based program that is easy to learn and operate. Powerful new tools such as ActiveX, ObjectFind and Scripting give DVT SmartImage Sensors the functionality normally expected from a high-end vision system at a fraction of the cost.

Each DVT SmartImage Sensor is shipped with FrameWork firmware pre-loaded; all you need to do is install the user interface on your PC. DVT adds ease of use and power to each FrameWork upgrade so that it handles more inspections and improves quality for companies in the automotive, semiconductor, electronics, pharmaceutical, injection molding and packaging industries.

Project Management
Configures and stores multiple inspection applications in the SmartImage Sensor's memory.

SoftSensors
Tools that perform various inspections like tracking parts within a field of view, counting edges, measuring distances, reading bar codes or characters and template matching.

Result Table
Each SoftSensor will display an independent report, including those that reference one another. Pass, fail and warn results are displayed in a detailed table.

Sample Image Display
The SmartImage Sensor returns a bitmap that is used to determine inspection criteria. Images can be automatically stored for later review.

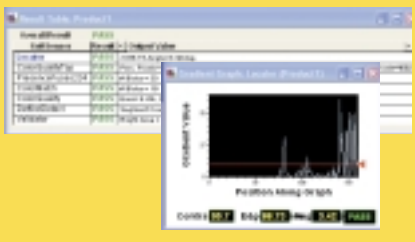
Real-Time Feedback
Graphically provides data for fine tuning your application.

Inspection tools are easy to use and are drawn on your images similar to any standard computer drawing program.

Click

Drag

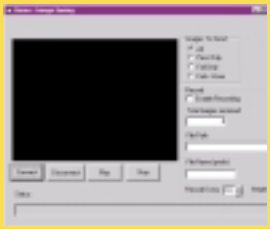
Setup



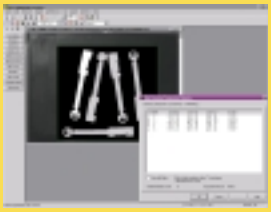
Run

All FrameWork software is Backward Compatible, Upward Migratable and Free to all Users

FW SoftSensors

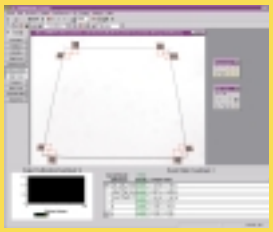


ActiveX
Saves customization time for OEMs and machine builders with drag-and-drop ActiveX controls for creating a custom interface.

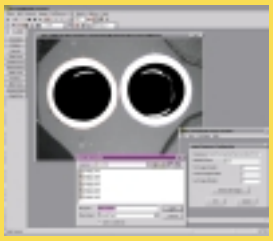


Blob Analysis
Analyzes odd shapes within the SmartImage Sensor's field of view for specific geometric characteristics like size and density; often used for part sorting and location.

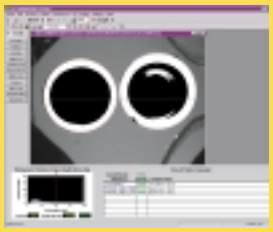
Pixel Counting
Allows FrameWork to learn shades of greyscale for monitoring, pixel counting, or increasing contrast for the rest of the SoftSensors. Easy to use Clustering feature quickly learns variations in intensity.



Coordinate Transformation
Designed to take a pair of coordinates output from another SoftSensor and "convert" the units from pixels to real-world unit systems. Often used with motion control devices.



SmartImage Sensor Emulator
Mimics a DVT camera by running previously saved images through FrameWork off-line. Great for training, presentations, application development and support from any location worldwide.

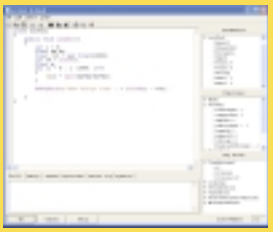


Intensity
Counts the number of bright and dark pixels in a region of interest. Used for defect detection and part presence or absence.

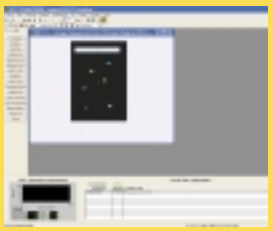
Lens Distortion Correction
Corrects for non-linear barrel distortion, and is commonly used with short focal length lenses.

Math and Measurement Tools
Computes dimensions of a variety of parts and shapes such as hole diameter, distance, angles and more.

ObjectFind
Learns the shape of a part so the SmartImage Sensor can inspect multiple, partially occluded and overlapping parts in a wide range of lighting conditions.

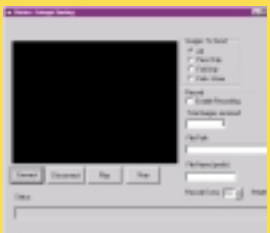


ScriptTool
Enables user to develop specific algorithms and inspection criteria to control processes and monitor status. Offers flexibility to solve any problem on the manufacturing line.



Segmentation
Powerful greyscale pixel grouping tool. Useful for defect detection or monitoring size, location in unevenly lighted areas.

SmartLink
Works in conjunction with a SmartLink hardware unit. The SmartLink SoftSensor allows the user to prepare a table containing information from other SoftSensors. This table can then be transferred and displayed in a SmartLink project.



Template Image
Template Match SoftSensors are used to check pixel patterns against a learned template. The main function of this SoftSensor is defect detection.