

FrameWork

User Interface Software



FW SoftSensors

Translational	Locates the exact vertical and horizontal position of a product feature in the field of view.
Rotational	Tracks rotational position (360°) of a product.
Intensity	Measures the range of light pixel values in defined areas within the image.
EdgeCount	Counts the number of light to dark transitions on the image.
FeatureCount	Determines size of parts for fast gauging and part pressure.
Measurement and Math	Work together to determine distance, intersections, radius, line and angle measurements to a sub-pixel level of accuracy and scale to engineering units. These tools are typically used in place of traditional calipers or other precision measuring devices.
Bar Code Reader	Reads and interprets 1-D and 2-D symbologies, now used extensively in the automotive, packaging and pharmaceutical industries for part tracking and inventory tracking.
OCR	A robust character reading tool designed to handle serial numbers, labels, product IDs and symbols in the industrial environment. Plus, it is fully trainable to read symbols, foreign language characters and mixed font sets.
Blob	Analyze shapes in the image for various geometric characteristics such as size, perimeter and density. Blob tools are primarily used in part sorting and locating applications.
ObjectFind	Finds predetermined objects 360°, even occluded, overlapped or unevenly lit parts.
Template Matching	Identifies patterns using a self-learn feature. Ideal for label inspection and optical character verification.
Scripting	Allows OEMs and advanced users to develop specific algorithms and inspection criteria to solve almost any problem on the manufacturing line without high levels of programming.
Background Script	Enables the SmartImage Sensor to monitor a process and continuously adjust for changes providing supervisory intelligence over runtime inspections.

Other Powerful Features

ActiveX Controls are useful for easy customization of operator interface.

SmartImage Sensor Emulator allows users to run the software offline for product development or to test applications without impacting the manufacturing process; also enables virtual support of an application from any location worldwide.

Communications: Modbus, enhanced DataLink, Profibus, DeviceNet; DVT will write drivers for any robotics application at no charge.



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FrameWork

User Interface Software

FREE!
 Free software, upgrades and training

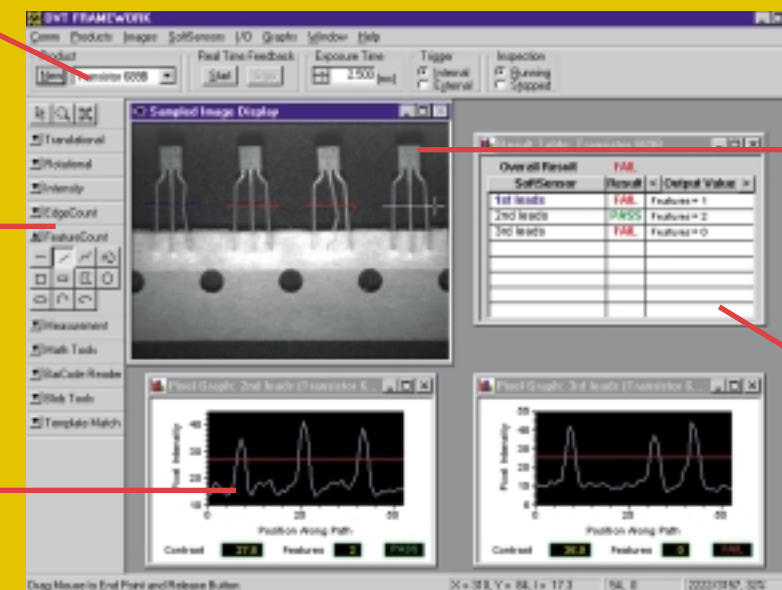
FrameWork, the software that manages and operates DVT SmartImage Sensors, is a Windows®-based program that is easy to learn and operate. Powerful new tools such as OCR, ObjectFind and Scripting give DVT SmartImage Sensors the functionality normally expected from a high-end vision system at a fraction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

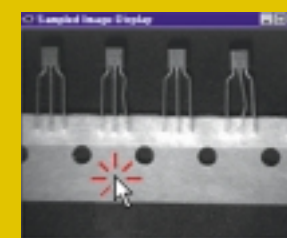
Real-Time Feedback
 Graphically provides data for fine tuning your application.



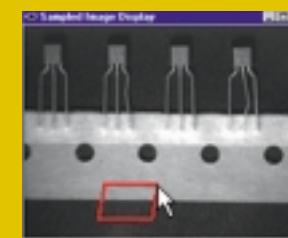
Sample Image
 The SmartImage Sensor returns a bitmap that is used to determine inspection criteria. Images can be automatically stored for later review.

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.

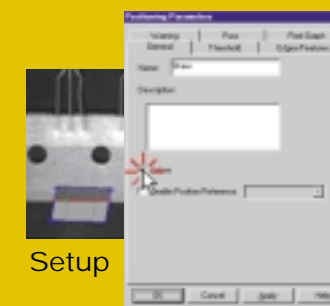
Inspection tools are easy to use and are drawn on your images similar to any standard computer drawing program.



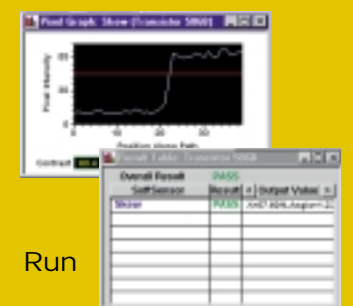
Click



Drag

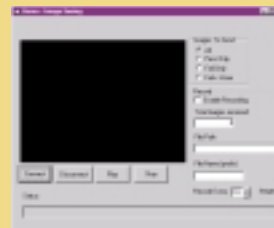


Setup

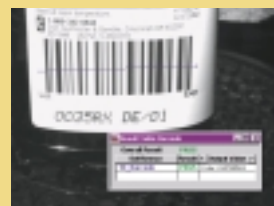


Run

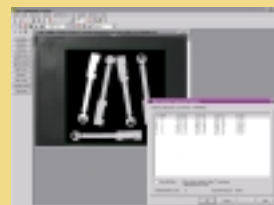
SoftSensors



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



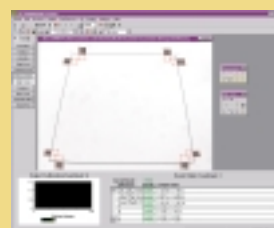
Bar Code Reader
Reads and interprets 1-D bar codes and 2-D data matrix symbologies now used extensively for inventory and part tracking in a variety of industries.



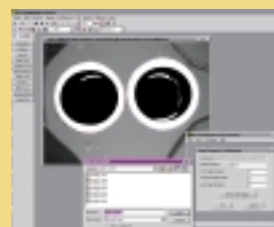
Blob Analysis
Analyzes odd shapes within the SmartImage Sensor's field of view for specific geometric characteristics like size, parameters and density; often used for part sorting and location.



Color Tools
Allows FrameWork to learn colors for monitoring, pixel counting, or increasing contrast for the rest of the SoftSensors. Easy to use Clustering feature quickly learns uneven colors and variations.



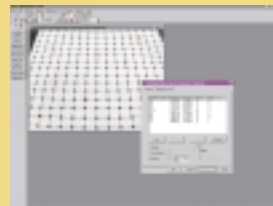
Coordinate Transformation
Designed to take a pair of coordinates output from another SoftSensor and "convert" the units from pixels to real-world unit systems. Often used with motion control devices.



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.



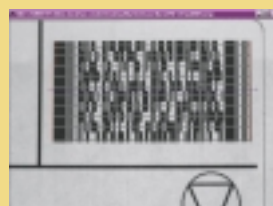
Math Tools and Precision Measurement
Computes dimensions of a variety of parts and shapes such as hole diameter, distance, angles and more.



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.



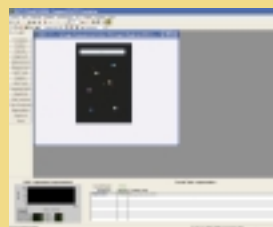
OCR
Reads and interprets barcodes, serial numbers, labels, product IDs and symbols, handles scaled and rotated characters, and is trainable to read symbols and foreign alphabets.



PDF 417
Robust software tool easily reads stacked barcodes commonly used in the automotive industry, packaging and for part tracking.



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 without complex programming.

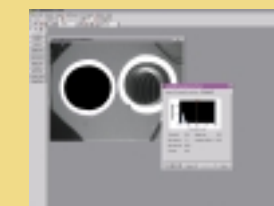


Segmentation
Powerful color and greyscale pixel grouping tool. Useful for defect detection or monitoring size, location, and color of unevenly lighted areas.

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



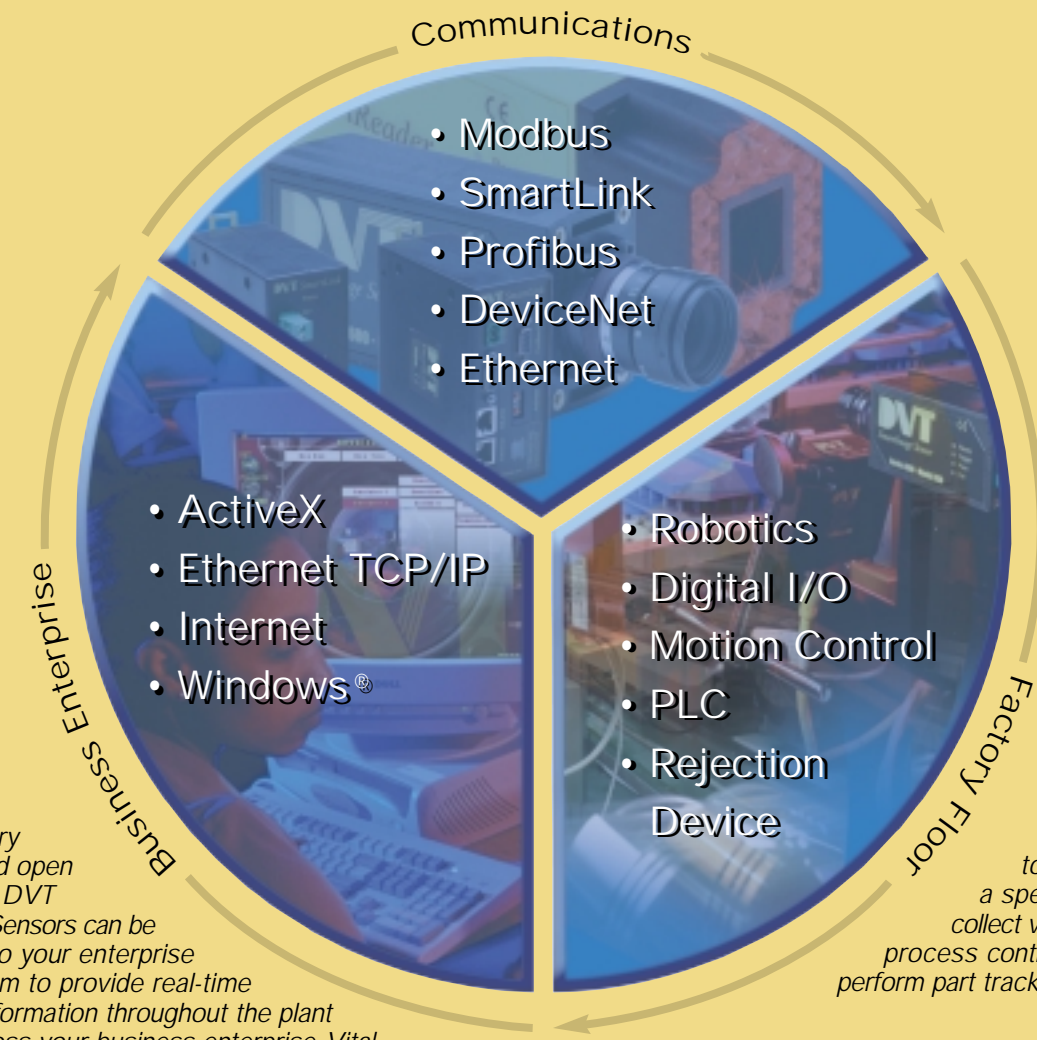
SmartLink
Allows operator to monitor up to 16 linked SmartImage Sensors from one display unit without a PC on the manufacturing floor. Offers less complexity and hardware costs.



Thresholding
Present in all tools and SoftSensors, thresholding separates pixels based on gradient or intensity.

DVT SmartImage Sensors are simply nodes on a network that capture information to increase productivity, efficiency and accuracy in your enterprise. With FrameWork, DVT products add complete connectivity and seamless integration from the factory floor to the front office.

Versatile communications and networking options give you the flexibility of delivering data to a variety of control devices.



As the industry moves toward open architecture, DVT SmartImage Sensors can be integrated into your enterprise control system to provide real-time transfer of information throughout the plant floor and across your business enterprise. Vital control information can be viewed via Ethernet by any department on the network and via Internet from any location around the world.

DVT allows you to guide a robot to a specific X-Y location, collect valuable statistical process control data, and even perform part tracking and inventory control functions.