Series 600

SmartImage Sensor

$4,995
includes lens, light, training and FrameWork software

The *Series 600 SmartImage Sensor* is the first truly "smart" image sensor. With high-resolution imaging plus network communications, the *Series 600* delivers vital control data such as quality control inspection results, coordinate information for motion controllers, statistical process control data, plus 1-D, 2-D verification and OCR.

Using DVT's patented technology, the *Series 600* delivers speed with an embedded PowerPC® processor, optimum image stability and repeatability. Small enough to fit in the palm of your hand, DVT's camera, image acquisition electronics and processor are integrated into a single, self-contained unit without the use of a PC on your factory floor!

In conjunction with DVT's *FrameWork* software, you get each of the tools and functions normally associated with high-end vision systems at a fraction of the cost. All upgrades are free and downloadable from **www.dvtsensors.com,** and new versions of *FrameWork* are always backward compatible and upward migratable.

"Once we put the Series 600 sensor in the machine, we saw our fail rate go right down to zero. It saved tool repair costs and let us allocate another $30,000 worth of annual labor costs because the press now requires only one full-time operator instead of two."

Paul Rugg,
Cascade

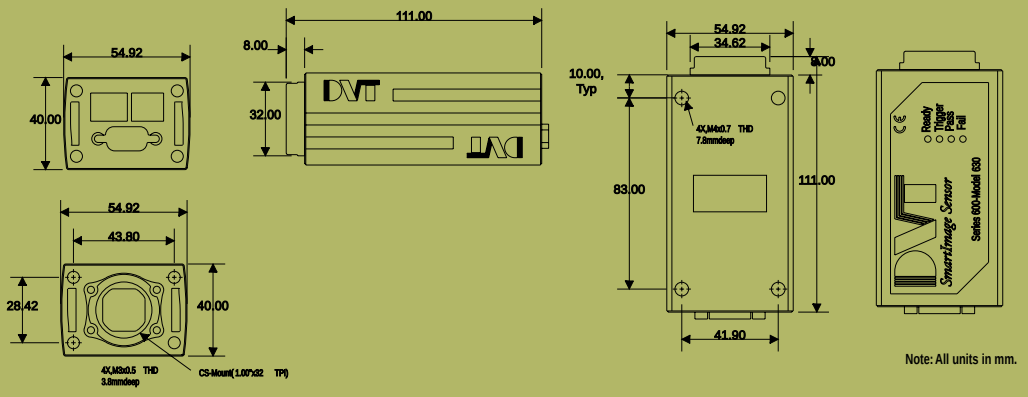
770-449-4960 www.dvtsensors.com

Series 600

SmartImage Sensor

Series 600 specs

Size	114mm x 55mm x 40mm (not including lens) + additional 50mm cable clearance
Mounting	Four M4 threaded holes (on bottom of unit), 7.9mm depth
Weight	170g/6oz (without lens)
Power Requirements	24 Volts DC, 210mA at 24 Volts (or minimum 5W supply), regulated and isolated (sold separately). Additional 30W required per DVT LED array light used
Operating Temperatures	0-45° C, 32-113° F
Image Sensor	4.8mm x 3.6mm (1/3" format") CCD, 640 x 480 pixel resolution, 7.4µm x 7.4µm, pixels
Electronic Shuttering	(10µs - 1s exposure times)
Optics	CS mount standard, C mount-capable with included adapter
External Port	15 pin high density D-Sub (Power and Digital I/O), RJ-45 (10/100 megabit Ethernet communications, TCP/IP protocol), RJ-11 (RS-422 serial communications)
Digital I/O	24 Volts DC regulated, 12 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 100mA. Connect with a fully populated, double shielded, 15 pin high density D-Sub Cable (sold separately)
	CE certified



Note: All units in mm.

SmartReader

OCR, 1-D and 2-D

$2,995
includes lens, light, training and SmartReader software

Offering a better price vs. performance solution compared to other readers on the market, the new DVT *SmartReader* offers proven barcode, 2-D Data Matrix and robust OCR capabilities for only $2,995.

Unlike a traditional sensor which operates on simple pass/fail criteria, the *SmartReader* gathers data for date/lot code verification, documentation and part tracking. Built-in communications capabilities like Ethernet TCP/IP and Modbus are available, as well as Profibus and DeviceNet when used with DVT's *SmartLink* communications module.

SmartReader is ideal for companies in the pharmaceutical, packaging and automotive markets looking for a low-cost system that communicates over Ethernet. The *SmartReader* also includes a powerful OCR package that reads accurately even in poor lighting conditions, is much more powerful than low-end readers, and handles scaled and rotated characters with ease.

Like other DVT products, the *SmartReader* is able to monitor inspections on the factory floor without a PC. The $2,995 package includes a lens, illumination, software, free upgrades and training.

"The OCR SoftSensor is an extremely powerful industrial reading tool that is designed for reading symbols in the industrial environment. It is much more powerful and reliable than low-end readers because it can read dot matrix and stroke font characters, it will split character that touch, and it handles both scaled and rotated characters."

Dr. Michael Schreiber, Ph.D.,
Director of Applied Engineering
DVT Corporation

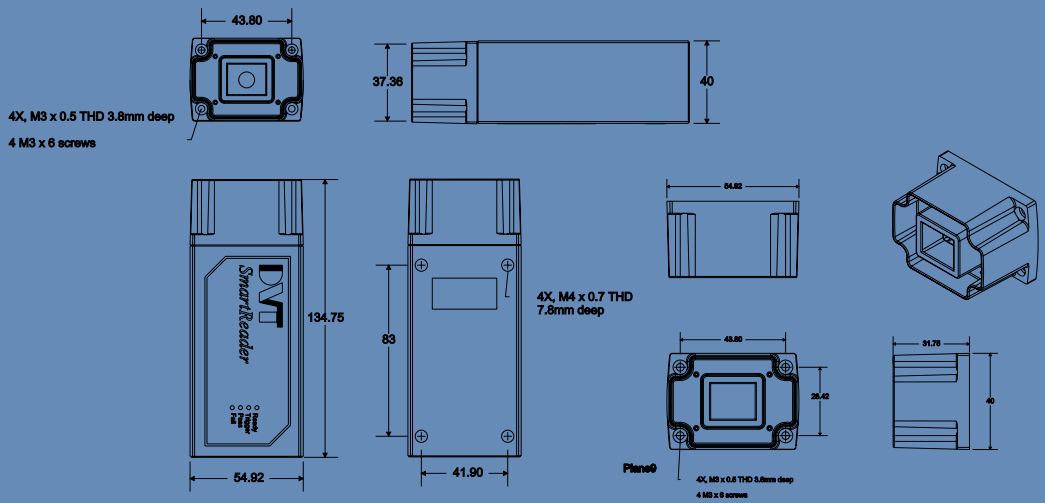
770-449-4960 www.dvtsensors.com

SmartReader

OCR, 1-D and 2-D

SmartReader specs

Size	135mm x 55mm x 40mm + additional 50mm cable clearance Mounting: Four M4 threaded holes (on bottom of unit), 7.9mm depth
Weight	284g/10oz
Power Requirements	24 Volts DC, 210mA at 24 Volts (or minimum 10W supply), regulated and isolated (sold separately). Additional power may be required for different lights.
Operating Temperatures	0-45° C, 32-113° F
Image Sensor	4.8mm x 3.6mm (1/3" format") CCD, 640 x 480 pixel resolution, 7.4µm x 7.4µm pixels
Electronic Shuttering	(10µs - 1s exposure times)
Optics	CS mount universal Cogaku lens standard, C mount-capable
External Ports	15 pin high density D-Sub (Power and Digital I/O), RJ-45 (10/100 megabit Ethernet communications, TCP/IP protocol), RJ-11 (RS-422 serial communications)
Digital I/O	24 Volts DC regulated, 12 configurable inputs and outputs, NPN (current sinking) inputs, PNP (current sourcing) outputs, active high signals. Input can sink up to 1.5mA and outputs source a maximum of 100mA. Connect with a fully populated, double shielded, 15 pin high density D-Sub Cable (sold separately)
Certifications	CE certified



SmartLink

Module and Communication Gateway

$495
includes SmartLink software

Does your company's application require the use of several DVT *SmartImage Sensors*? Now with DVT's *SmartLink* communications module, you can view multiple cameras from the same screen for only $495. No computer is required!

Using standard Ethernet communication technology, *SmartLink* transfers images from up to 16 networked *SmartImage Sensors* so you can view multiple inspections at one time with a standard inexpensive monitor or freeze images for operator intervention.

Like the *Series 600*, *SmartLink* allows you to transfer applications via Ethernet TCP/IP and view for later analysis. With *SmartLink* software you can easily create a custom interface to display images and inspection results specific for your facility. It also delivers optional Profibus or DeviceNet connectivity.

"We chose the SmartLink because of its ability as a communications hub to view multiple inspections without a costly PC."

Ed Griffith,
Cascades-Diamond

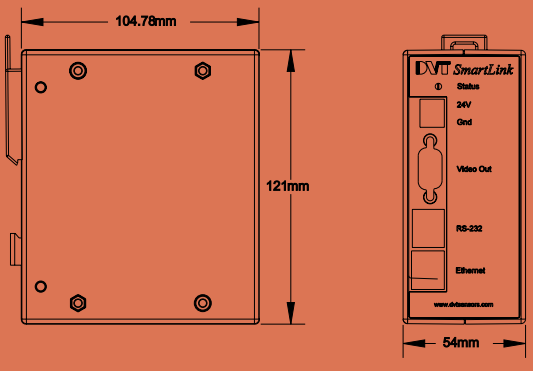
770-449-4960 www.dvtsensors.com

SmartLink

Module and Communication Gateway

SmartLink specs

Size	54mm x 121mm x 104.7mm
Mounting	Snaps to standard 35mm Din Rail
Weight	285g
Power Requirements	24 Volts DC, 210 mA at 24 Volts (or minimum 5W supply), regulated and isolated
External Ports	15 pin high density D-Sub (VGA output), RJ-12 (RS-232 serial), RJ-45 (10/100 megabit Ethernet, TCP/IP)
Options	DeviceNet and Profibus
Monitors Supported	640 x 480, 800 x 600, 1024 x 768 @ 60-85 Hz
Certifications	CE Certified



FrameWork

User Interface Software

Free!
Free Training, Free Upgrades

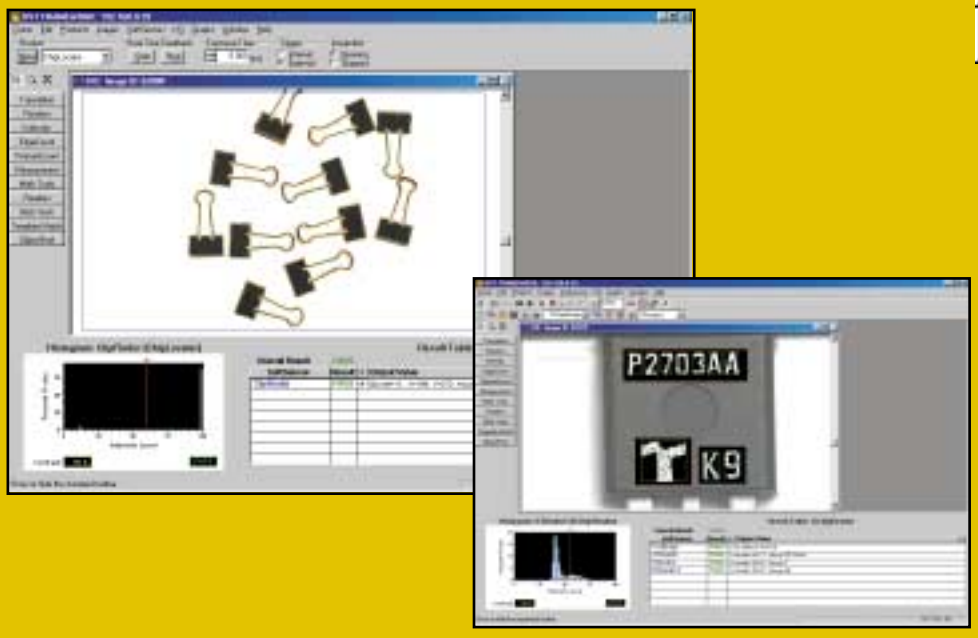
FrameWork, the software that manages and operates DVT SmartImage Sensors, is a Windows®-based program that is easy to learn and operate. Powerful new tools such as OCR, ObjectFind, and Scripting give DVT SmartImage Sensors the functionality normally expected from a high-end vision system at a fraction 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. Inspection tools are easy to use and are drawn on your images similar to any standard computer drawing program.

FrameWork adds ease of use and power with each upgrade, handles more inspections and improves quality for companies in the automotive, electronics, pharmaceutical, injection molding and packaging industries.

- Translation
- Rotation
- Intensity
- EdgeCount
- FeatureCount
- Measurement
- Math Tools
- Readers
- Blob Tools
- Template Match
- ObjectFind

FrameWork's SmartImage Sensor Emulator allows the software to run off-line for product development, educational purposes, or even to test and develop applications without impacting the manufacturing process. Plus, the SmartImage Sensor Emulator enables virtual support of an application from any location worldwide!



"We got our first Series 700 in 1997 and have purchased a number of 700, 800 and 600 SmartImage Sensors since then. The transition to newer versions of *Framework* goes very smoothly - I just backup the system to a PC, upgrade to the newer version of *Framework*, and restore the products back into the system. There may be some issues with older scripts, but DVT has made provisions to aid in bringing them along without having to fully rewrite them."

Keith Bailey,
Osram-Sylvania

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FrameWork

User Interface Software

FW SoftSensors

Translational	Locates the exact vertical and horizontal position of a product feature in the field of view.
Rotational	Track rotational position (360°) of a product.
Intensity	Inspects the range of pixel light values in defined areas within the image
EdgeCount	Counts the number of light to dark transitions on the image.
FeatureCount	Determines the size of the transitions.
Measurement and Math	Work together to determine distance, intersections, radius, line and angle measurements to a sub-pixel level of accuracy and provide scale factor. 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 tracing and inventory tracking
OCR	An affordable and robust character reading tool designed to handle serial numbers, labels, product IDs and symbols in the industrial environment, plus 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, overlapping 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 run time 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, plus DVT will write drivers for any robotics application.*