

Powervision® Family of Vision Systems

Maximum Flexibility for Demanding Applications

Product Summary

The Powervision Family includes high-resolution vision systems that are designed to handle the most complex industrial inspection applications. These systems feature advanced imaging, processing, analysis, and graphical tools that support on-line gauging, defect and flaw detection,

automatic identification, and machine guidance tasks. In addition, these systems support high performance cameras including High Resolution Area Scan (1K x 1K and higher), Line Scan cameras (2048, 1024, and 512 pixel resolution) and TDI (Time Delay Integration) cameras.

An extensive library of analysis algorithms and measurement tools helps ensure quality and controls processes at speeds up to 1,200 parts per minute with accuracy to 0.0001" using 1K

x 1K high-resolution cameras or 7,000 parts per minute with an accuracy to 0.1 pixel with Line Scan cameras. 256-level gray-scale subpixel processing means accurate and repeatable performance even with variations in part position, orientation, finish, or lighting.

These systems allow for multiple cameras, digital I/O, and are available with industrial enclosures and rack mount options for easy factory floor integration. Inspection results are communicated to external devices using standard network communications protocols.



Applications

- Flaw detection
- Presence/absence
- Automatic identification
 - Optical Character Recognition (OCR)
 - Data Matrix (DMx)
 - Bar Code
- Dimensional gauging
- Assembly verification
- Assembly guidance

Features

- Menu-driven application set-up
- Customizable user interface
- Robust calibration compensates for perspective distortion
- Compensates for part orientation
- Supports up to 12 cameras
- Subpixel accuracy of 1/4 to 1/10 pixel
- Supports High Resolution (1K x 1K or greater) and Line Scan cameras
- Largest selection of vision algorithms and measurements in the industry

Powervision 990 Series Specifications

System Configuration

Processor:	Powervision RISC processor, (64 500 MHz) 32-bit PCI bus
Memory:	128 RAM minimum, factory upgradeable
Storage:	Hard Drive, 100 MB Zip Drive
External Ports:	1 RS-232/RS-422 serial 1 10/100 BASE-T Ethernet 2 USB 2 Firewire (IEEE 1394)
Networking:	Built-in Ethernet with TCP/IP support
User Interface:	Graphical User Interface, Keyboard & Mouse, 15" Color Monitor
Slots:	3 PCI-slots
Camera Support:	Full range of RS-170 and CCIR cameras TDI (Time Delay Integration) and Line Scan cameras Large Scale Area Scan cameras
External I/O:	8-bit parallel digital I/O; 96-bit optional

Electrical and Environmental

Power:	Switchable 115V/230V, 50-60 Hz, single phase, @ 120 V = 3.4 amps (@ 240 V = 1.7 amps) CE Compliant
Environment:	Operating 50-122° F (10-50° C); 5-95% relative humidity (non-condensing)

Options

- Additional vision boards: Acuity standard (4 camera ports per board, maximum of 3 boards per system) or Digital camera interface boards (1 camera port per board)
- Other options: Cameras, lighting, Vision Guided Motion, industrial monitor, rack mount kits

Physical Dimensions

- Rack Mount Unit
19" x 7" x 20", 39.6 lbs
(482 mm x 178 x 508 mm, 18 kg)
Allow an additional six inches in depth for cables
- 15" Color Monitor
16.7" x 15.9" x 17.8", 31 lbs.
(424 x 404 x 452 mm, 14.1 kg)

Specifications subject to change without notice.

System Software

- Image Analyst® Application Software
- Menu-driven interface
- User-definable display capability

Image Processing Algorithms

Binary & gray scale morphology: Linear and nonlinear filtering; Image Arithmetic; Histogram equalization; User-definable ROI shapes

Image Analysis Algorithms

Area Counting, Hough Transform, Connectivity Analysis, Vector Scanning, Gray Scale Analysis, Dynamic Locators, Edge Analysis, Optical Character Recognition (OCR), Bar Code Reading, Data Matrix Reading, and Normalized Correlation. Analysis and measurement operations from multiple images can be sequenced, in any order, and implemented by a single command.

Measurements

Over 200 measurements including horizontal and vertical distance, point-to-point, and line-to-point distances, area, centroid, radius, standard deviation of gray value, correlation match value, location of an object, roundness, angle between two lines, X-Y true position, mid-point, intersection of two lines, object counting, and much more.

Combination of Measurements

- Mathematical operators: +, -, *, /, min, max, average
- Custom measurements

Calibration

- Robust 2-D world space: Automatically corrects for perspective and provides a 2-D world space coordinate system.
- Multiple Cameras: Images from multiple cameras can be calibrated into a common coordinate system.

Results Reporting

- Automatically for unattended operation through digital I/O
- Displayed, printed, or time stamped and saved to disk
- Statistics displayed on the monitor during operation
- Formatted serial data output or Ethernet

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