# 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 several types of high performance cameras including High Resolution (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 or rack mount options for easy factory floor integration. Inspection results are communicated to external devices using standard network communications protocols.

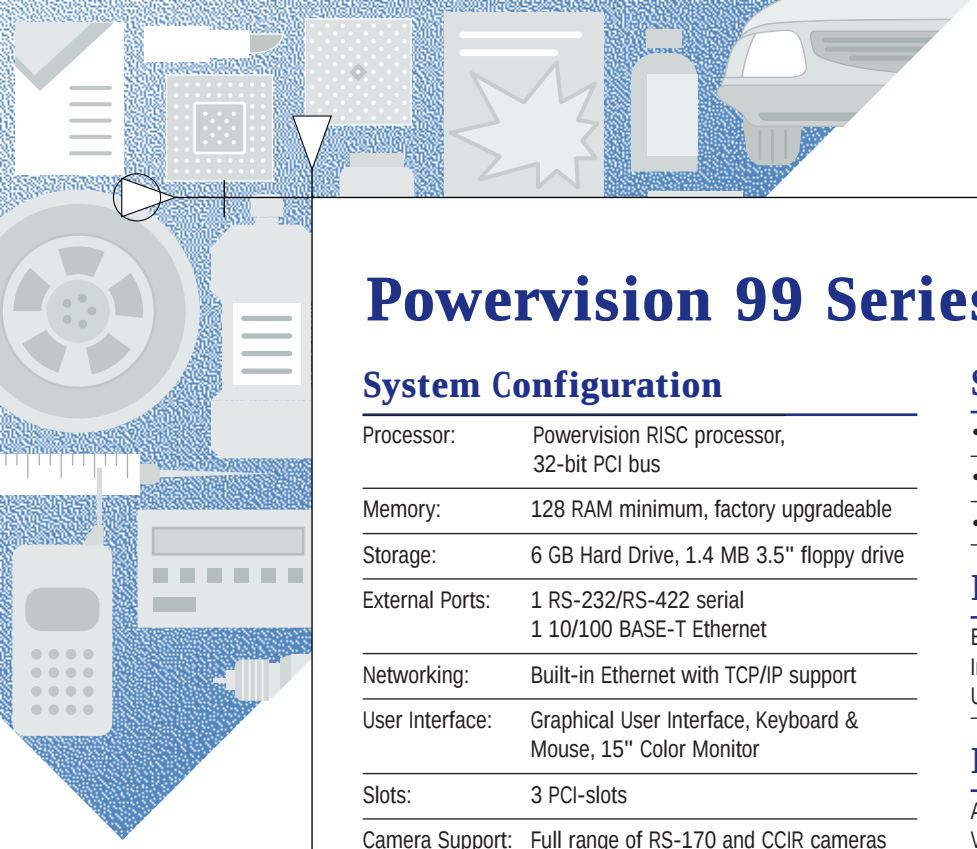
## Applications

- **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 setup**
- **Customizable user interface**
- **Robust calibration compensates for perspective distortion**
- **Compensates for part orientation**
- **Supports up to 16 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**

RVSI Acuity CiMatrix



# Powervision 99 Series Specifications

## System Configuration

| | |
|---|---|
| Processor: | Powervision RISC processor, 32-bit PCI bus |
| Memory: | 128 RAM minimum, factory upgradeable |
| Storage: | 6 GB Hard Drive, 1.4 MB 3.5" floppy drive |
| External Ports: | 1 RS-232/RS-422 serial<br>1 10/100 BASE-T Ethernet |
| 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<br>TDI (Time Delay Integration) and Line Scan cameras<br>Large Scale Area Scan cameras |
| External I/O: | 8-bit parallel digital I/O; 96-bit optional |

## Electrical and Environmental

| | |
|---|---|
| Power: | Autoranging; 90-270 VAC, 50-60 Hz, single phase, @ 120 V = 3.4 amps (@ 240 V = 1.7 amps)<br>CE Compliant |
| Environment: | Operating 50-122° F (10-50° C); 5-95% relative humidy (non-condensing) |

## Options

| | |
|---|---|
| • Additional vision boards: | Acuity standard (4 camera ports per board, maximum of 3 boards per system) or Flexible acquisition boards (1 camera port per board, maximum of 2 boards per system) |
| • Other options: | Cameras, lighting, Vision Guided Motion, industrial monitor, rack and panel mount kits |

## Physical Dimensions

- Powervision Vision Processor
  17" x 8.9" x 18.4", 30 lbs.
  (432 x 226 x 467 mm, 13.6 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)

## 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), 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
- Customer measurements available

## 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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