Arachne Web Inspection Workstation

Dynamic Analysis for More Accurate Web Inspection System Specification

Arachne is a fully-functional, pilot-scale system that enables web integrators and web application developers to evaluate samples, helping them specify full-scale Black Widow web inspection systems. Arachne may be deployed in a laboratory setting, or integrated with an existing web process to provide real-time, real-world insight into inspection needs.

Acquire Samples Direct from the Web

The ability to integrate Arachne with a fully functional web process provides a more accurate indication of the requirements of an inspection system than analyzing finished, static handsheet samples in a laboratory. Dynamic, on-machine analysis also takes into account variations in lighting, machine speed, lens effects, and defect contrast, size, density, and orientation that are difficult to fully anticipate. It enables developers to see what influence ambient lighting, air (temperature, dust, and moisture), and vibration may have on a system's performance.

Real-time Web Recording

Arachne records the web as it passes by the camera, in real time. Operators see continuous, live video images of the web showing all its characteristics, including defects, present at that point in the operation. This ability can help customers understand how to characterize and classify their product defects.

The Arachne can also playback the video images it captures. This powerful tool enables application developers to use image processing software to determine the best parameters for a given inspection application.

After fine tuning the image processing software parameters, system operators can load those parameters into the web inspection system to configure it for best performance on the production line. This ability enables integrators to specify, with minimal risk, a Black Widow web inspection system for a given application. The full-scale Black Widow system has the power to provide true 100% inspection of continuous materials at production rates. These systems economically detect and classify a variety of defects from quickly moving webs to minimize scrap and downtime and enhance quality.

The Arachne portable web inspection system consists of a Windows NT system running Arachne Analysis Software, a VME-based real-time disk, and the Black Widow inspection engine (pictured above).

Arachne also includes a camera box and encoder unit (pictured at the right) that can be integrated with the customer's web system for real-time acquisition of defect data.

System Capabilities

Arachne performs inspection of a wide variety of web materials, including paper, film, and textiles. Depending upon the configuration, the system can view a web traveling at speeds up to 1,500 meters per minute. With appropriate camera settings for scale and resolution, Arachne can detect defects as small as 25 microns.

Functional Components

The Arachne system includes three key functional components:

The *Web Real-Time Disk* provides capture and playback of defect images, used to build a defect image database and evaluate image processing techniques.

Arachne Analysis Software enables quick and easy evaluation of computer algorithms and image processing solutions without programming.

A *Black Widow Web Inspection Engine* allows integrators and developers to test image processing solutions on captured defect images or on a live production line.

- Complete, portable web inspection analysis system
- Acquires and digitally records dynamic defect data from the web in real time
- Steps through recorded sequences to provide instant feedback on resolution and lighting
- Easy-to-use Black Widow-style GUI with touch screen display
- Provides developers with a qualification platform for full-scale Black Widow systems
- Recorded web defect data can be used in proposals and live presentations to integrators' customers

Specifications

Software

System Software

- Windows NT operating system software

Datacube Software

- Arachne Analysis Software

Additional Software

- Microsoft® Office 97 for creating proposals and presentations

Operator Interface

- Pentium-based PC
- Black Widow-style GUI with touch screen interface
- TCP/IP
- RS-232

Image Processing System

- Motorola host CPU
- Datacube real-time image processing hardware
- Black Widow “core” processor

Camera System

- Rugged, industrial enclosure
- Single linear array camera
- Encoder interface
- Light control interface

Lighting System

Available components include:

- TIR, halogen type
- Fiber optic

Encoder Assembly

Designed to synchronize image processing system with web motion. Includes:

- Friction encoder
- Mounting bracket
- Cable

Additional Information

For more information about the products mentioned in this document, please refer to the following Datacube literature:

Black Widow Data Sheet

Black Widow Technical Description

MaxVideo 250 Data Sheet

D A T A C U B E

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