WINTRISS

INSPECTION SOLUTIONS

A Subsidiary of Wintriss Engineering Corporation USA

Automatic Surface Inspection System

www.winspection.com   www.weco.com

Web Ranger - Surface Inspection System

Camera Unit

Operator Station

Labeller

Benefits

- Refine and Improve process
- Improve Quality
- Accurate Grading of Rolls
- Generate Roll Reports
- Automate Pass/Fail of sheets
- Maximize Yields
- Identify incoming roll problems
- Provide information for down stream efficiency

Lighting

Rotary Encoder
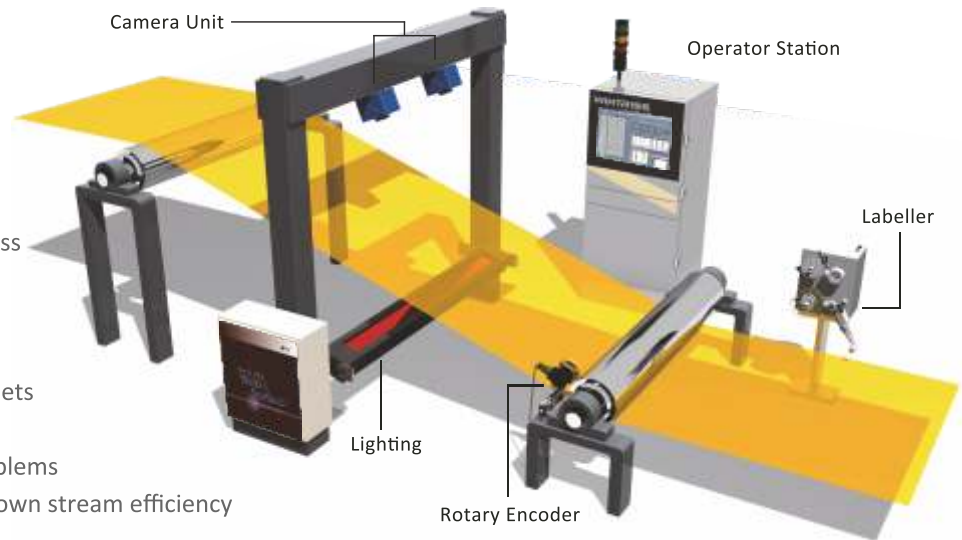
Hardware Specifications

Smart Camera   Stand-alone Web Inspection System

OPSIS 7500 Series

- 7448 Pixel CCD
  4.7 x 4.7 micron pixel size
- Variable Scan rate
  10,320 scans/sec at 7448 pixels
  390,000 scans/sec at 256 pixels

OPSIS 8000 Series

- 8192 Pixel CMOS sensor
  7um x 7um pixels
- Variable scan rate
  up to 40,000 scans/sec

Lighting

LED

- Compact, Energy-Efficient Lightsource
  for surface inspection applications

Operator Workstation

Operating System
- Win7 X64
Inspection Software
- Web Ranger 2000
Database
- Microsoft SQL Server

Labeller

Tagger

- Up to 300 M/min
- Automatic calibration
- Pressurized roller for robust tagging
- Tagger roll complete alarm
- Tag dispensing speed controlled

Marker

- Up to 3000 M/min
- Automatic edge tracking
- PLC control
- Automatic/manual mode selection

A powerful classification engine quickly and accurately sorts the defects into user-defined categories to aid in production quality control and process improvement. All defect data can be viewed in real time and is also stored in a comprehensive database for subsequent review, analysis, reporting and archiving.

Features

Advanced Classification
precise classification of defects into user-defined categories using advanced statistical (KNN) and non-linear heuristic methods (neural networks)

SQL Database
comprehensive database of defects with images, positions and all defect features

Automatic Archiving
automatic transfer of defect data to an external device or system based on user-defined criteria

Flexible Reporting
standard and custom reports of inspection results and statistics in tabular and graphical format

Formation Analysis
Graphical display of product quality based on calculation of a Non Uniformity Index

Factory Interfaces
Windows-based open architecture allows easy connections to other systems and devices via OPC, TCP/IP, SQL Query, Ethernet, or custom digital interface

Defect Density
automatic defect monitoring based on user-specified criteria that assign points to defect class occurrences

Roll Grading
automatic grading of rolls based on user-specified grading criteria that assign points to defect class occurrences

Trend Analysis
automatic detection and reporting of repeating defects

Custom Digital I/O
to generate alarms, trigger marking and tagging systems, automatically start/stop jobs, etc.

Multi-Language GUI
English, German, Chinese, Japanese, Korean, Traditional Chinese, Simplified Chinese

Access
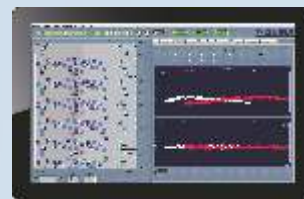Remote access via Internet for system maintenance and software upgrades

Support
24/7 Technical Support via Internet and Telephone Hotline
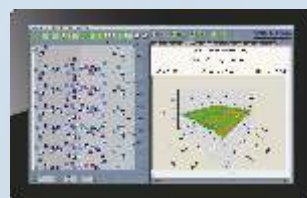
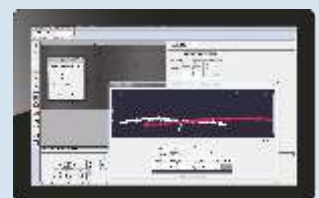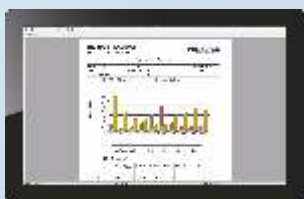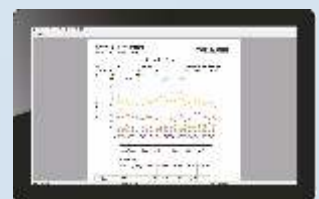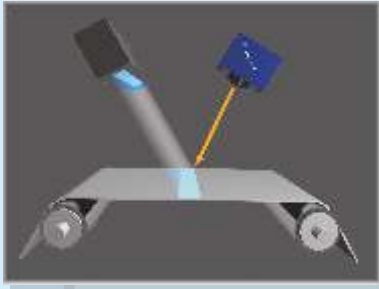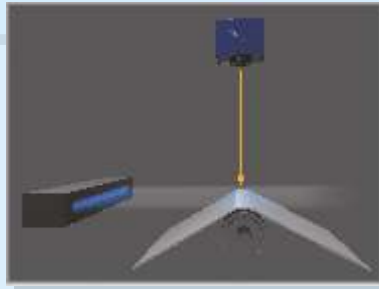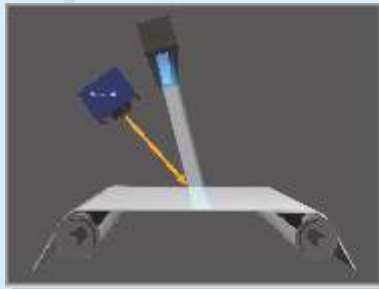| Operator Interface | Picture Book | Line Profile | CD-MD Charts |
| Classifier | Formation | Optimization | Setup Interface |
| DB Analysis-CD Report | DB Analysis-Defect Report | DB Analysis-Image Report | DB Analysis-MD Report |

Lighting Configurations
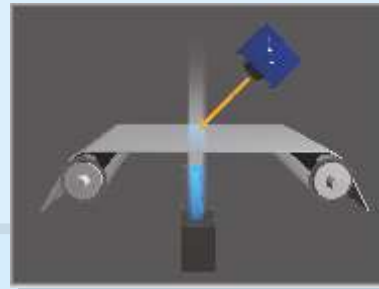

Specular Front Light
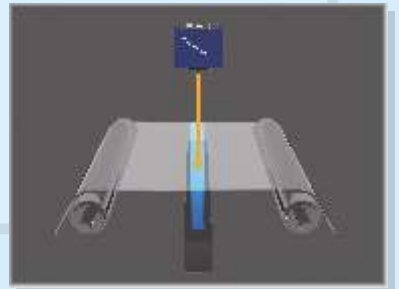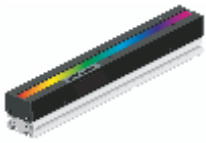

Oblique Front Light

Diffuse Front Light

Dark Field Front Light

Dark Field Back Light

Pure Back Light

Lights

LED Light

High Intensity, long life, uniform and modular LED light to suit applications up to12meters in width. LED color chosen based on application (Red, Blue, Cyan, Green, White)

Sodium Light

The lighting system shown includes 400-watt sodium lamps which produce 200,000 lux uniform illumination(over twice the brightness of sunlight). Each lamp enclosure contains its own power supply and hifrequency ballast.

Lamp Energy Distribution

Micro-Watts / nm

Wave Length (nm)
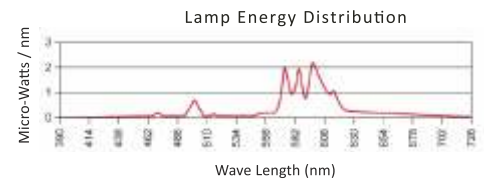
Micro Ranger

An integrated linescancamera and LED light source that detects micron-sized defects. Collimated light for detection of 2 micron defects in opaque material.

Refraction Ranger

Collimated Light for detection of subtle MD scratches, dents, gels and other optical film defects using a single array of cameras.

Patented lighting products are specifically designed for optical film inspection applictions.

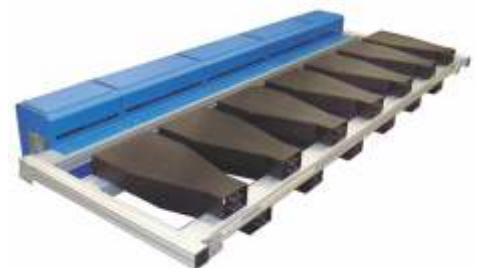# Precise Defect Classification

The Web Ranger's advanced classification engine can perform precise defect classification based on extremely subtle differences between defect categories. Using more than one hundred extracted features and multiple techniques, the classification engine can be easily trained to reliably recognize distinct defect categories present in the material being inspected. Web Ranger's superior classification performance greatly enhances product grading, process control and overall quality control.

Film
Optical film; extruded, cast, and blown film; transparent, translucent, and opaque; laminated, coated, and metallized

| Bump | Contamination | Gel | Scratch | Dimple | Dirt | Fish Eye |

Metal
Copper Foil, copper clad laminates, polished steel belts, and coated aluminum & steel coils

| Deposit | Hole | Bump-Pit-Grease | Bump-Pit | Bump | Dent |

Nonwoven
Coated, glass mat, scrim, spunbond, wetlaid, meltblown, airlaid, and spunlace

| Binder Void | Clump | Heavy Rope-Oblique Light | Hydroformer Streak | Large Vein-Oblique | Twist-Back Light |

Paper
Coated, paperboard, specialty, fine, and synthetic paper

| Chunks | Creases | Pin Hole | Smudge | Streaks | Water Marks |

Woven
Industrial textiles, engineered fabrics, composites, unpatterned fabrics, fiberglass

| Loose Thread | Stop Mark | Streak | End Out | Burner Trash |

PCB
Woven Fiberglass, Poly Preg (coated Fiberglass), Paper PP, Copper Foil, Sputtered Cu Foil, PI, Copper Clad Laminate (CCL)

| Cu Foil Pin Hole | Broken Fiber | PP Dark Spot | PP Fish Eye | Cu Foil 3D Defect |

Applications

Nonwoven
Coated Nonwoven, Spun Bond, Spun-laced, Bonded, Needle Punch

Metals
Coated metals, Aluminum foil, Copper Foil, Cold Rolled Steel, Polished Steel Belts

Glass
Display Glass, Coated Glass, Glass Tubes (CCFL tubes)

Plastic Film Industry
Coated Films, Laminated Film, Extruded Films, Blown Films, Optical Films, Acrylic Sheets, PC Film Sheets, Vinyl sheets, Diaper Film

PCB Industry
Woven Fiberglass, Poly Preg (coated Fiberglass), Paper PP, Copper Foil, Sputtered Cu Foil, PI, Copper Clad Laminate (CCL)

Paper
Base Paper (25gsm to 400gsm), Coated Paper (Art Paper), Paper Boards, Industrial Paper, Cigarette Paper, Tissue Paper and Synthetic Paper

One System
Endless Applications

Coated Paper

Copper Foil
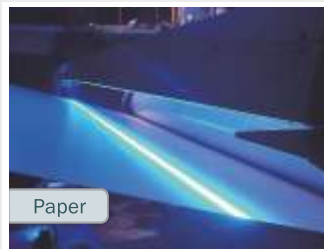

Fiberglass

OPF Film

PET

Pre Preg

Nonwoven

Paper

Polarizer Film

Window Film

PCB Dry Film

Battery Film

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Wintriss Inspection Solutions, Ltd., a subsidiary of California-based Wintriss Engineering Corporation, develops and manufactures optical surface inspection systems using smart, CCD linescan cameras. Rapidly expanding and with a world-wide presence, Wintriss has installed over 500 inspection systems in North America, Asia, and Europe. The company's principal manufacturing facility in Taipei, Taiwan, is centrally located in Asia. Product development and R&D are performed in both Taipei and San Diego, California.

Wintriss employs a variety of sales channel partners/distributors covering both geographical and specialized industrial market segments. Sales and technical support offices are located in Taiwan, the U.S., China, Korea, Indonesia, India, Philippines, and Thailand.

Having developed our first smart camera in 1994, Wintriss Engineering is a pioneer in embedding processing intelligence in cameras. We have created increasingly capable cameras with greater processing speed, higher resolution, and standout flexibility, specifically adapted for web and other types of surface inspection applications.

Our design hallmark is a powerful field programmable gate array in the high-resolution camera, which hosts a real time image processing capability. Additional on-board processing using a general purpose CPU simplifies overall inspection system architecture, facilitates system scalability, enhances reliability, and significantly reduces system cost.

Wintriss Inspection Solutions' flagship product is the Web Ranger System, which employs the linear cameras in a network-based, distributed architecture. Our core competency is the in-depth understanding of optics and image processing. This expertise and our surface inspection experience enable the company to conceive and implement innovative designs to meet diverse customer requirements for surface inspection. Key patents in image processing and illumination technology are the basis for the exceptional defect detection capability of the Web Ranger System and Wintriss' market leadership in the inspection of display films.

Do you have a challenging surface inspection requirement? With sales and technical support located in Asia and North America, Wintriss responds instantly to meet customer requirements. We invite you to contact our professional staff for consultation on a solution tailored to satisfy your requirements.

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