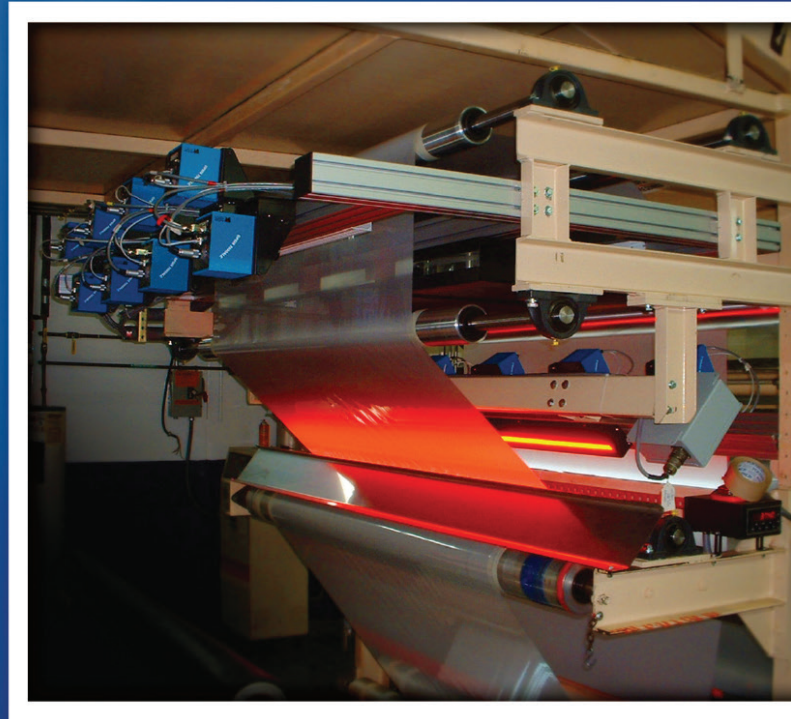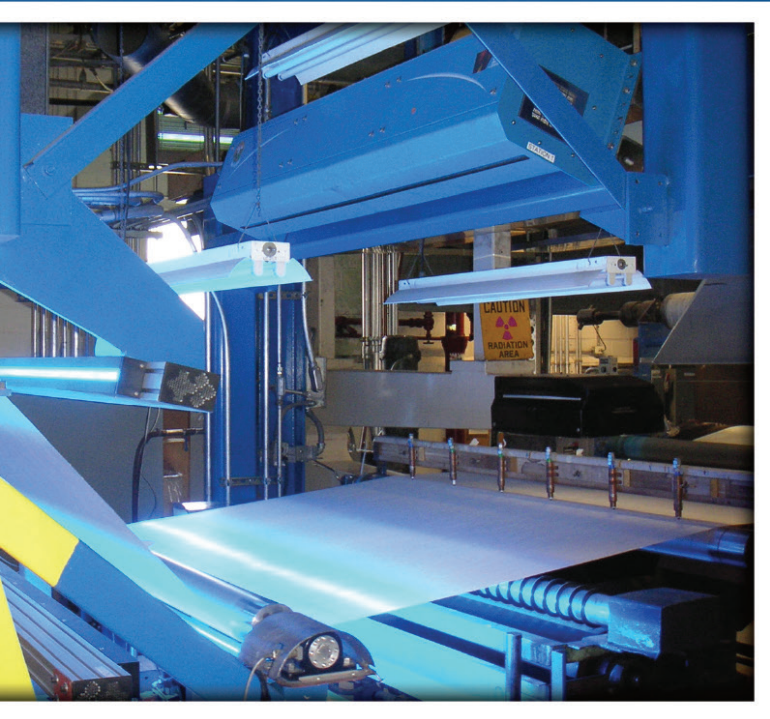# WINTRISS*

Engineering Corporation

IMAGING SOLUTIONS FOR PEAK PERFORMANCE

SMART CAMERAS · LIGHTING · PROCESSING INTELLIGENCE

Web Ranger™ is an optical surface inspection system for defect detection, classification and analysis of film & sheet, nonwovens, paper, foil, plastics, metals, glass, composites, and more. The system design is optimized for continuous web inspection applications, resulting in superior defect detection and classification.

A highly modular system of Smart Cameras, Lighting, and Automation Systems, Web Ranger™ can be tailored to any inspection application. Powerful setup tools allow for efficient system configuration and optimization. The system architecture is both extremely flexible and easily scalable. Improve your product quality and boost productivity with 100% real-time inspection.

SMART CAMERAS

Wintriss Engineering's OPSIS family of smart cameras is designed specifically for web inspection. On-camera hardware accelerated image processing eliminates requirements for intermediate processors/ frame grabbers and high bandwidth network connections. Distributed processing accommodates higher defect rates than software-based systems. OPSIS smart cameras facilitate a highly modular system design that is easily scalable.

FEATURES INCLUDE:

- 8192 pixel CMOS sensor
- Up to 640 megapixel per sec scan
- Up to 80,000 lines per second
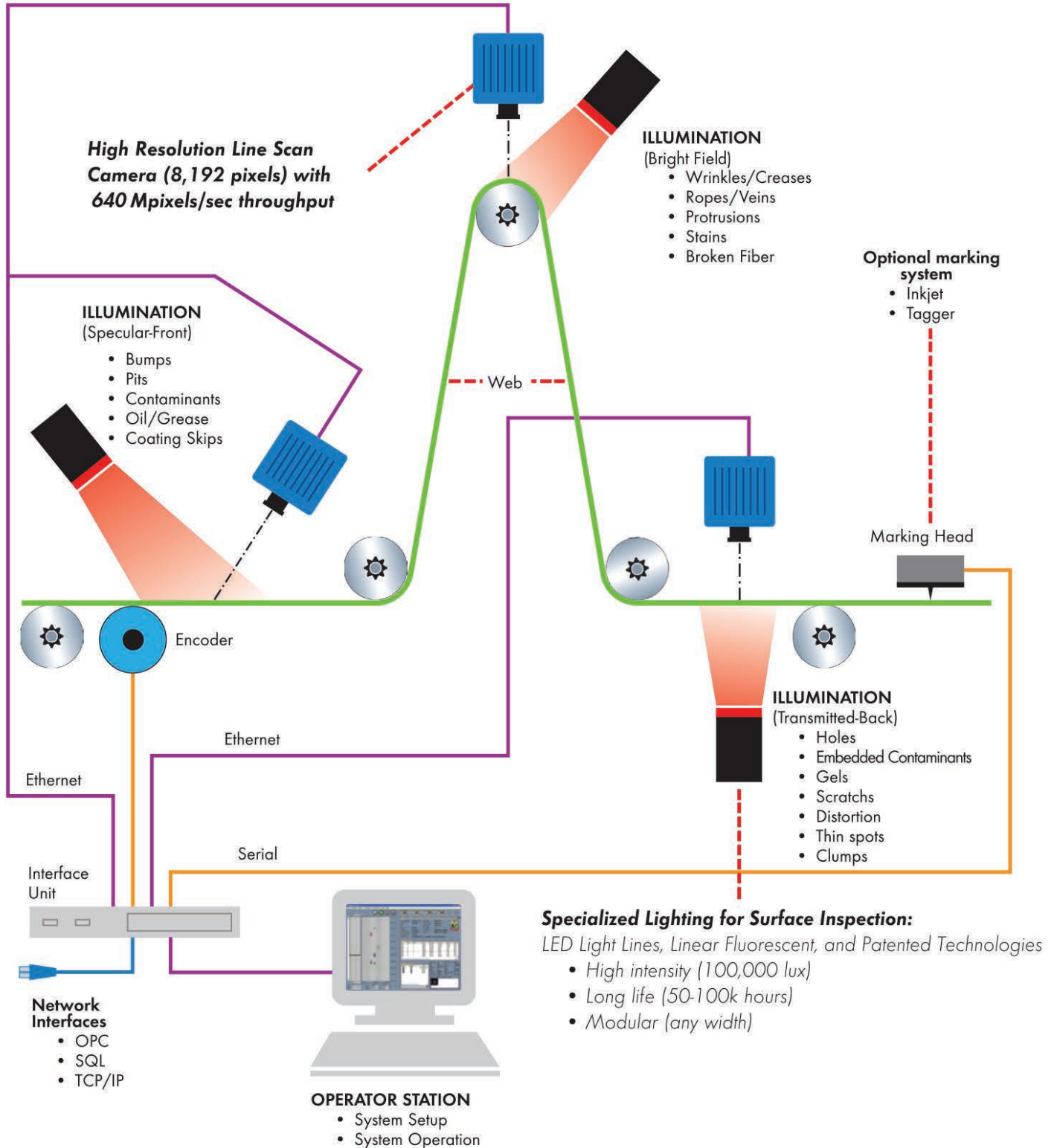- Complete exposure control

❋OPSIS SMARTVISION

Wintriss' third generation, smart CMOS line scan camera.

WINTRISS❋

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Web Ranger™ Modular Architecture

High Performance, Expandable, Cost-effective

High Resolution Line Scan Camera (8,192 pixels) with 640 Mpixels/sec throughput

ILLUMINATION
(Bright Field)
- Wrinkles/Creases
- Ropes/Veins
- Protrusions
- Stains
- Broken Fiber

Optional marking system
- Inkjet
- Tagger

ILLUMINATION
(Specular-Front)
- Bumps
- Pits
- Contaminants
- Oil/Grease
- Coating Skips

Web

Marking Head

Encoder

Ethernet

Ethernet

ILLUMINATION
(Transmitted-Back)
- Holes
- Embedded Contaminants
- Gels
- Scratchs
- Distortion
- Thin spots
- Clumps

Serial

Interface Unit

Specialized Lighting for Surface Inspection:
LED Light Lines, Linear Fluorescent, and Patented Technologies
- *High intensity (100,000 lux)*
- *Long life (50-100k hours)*
- *Modular (any width)*

Network Interfaces
- OPC
- SQL
- TCP/IP

OPERATOR STATION
- System Setup
- System Operation

LIGHTING

Proper illumination is critical to effective defect detection performance. Lighting design must consider material texture, web speed, color, defect size & type, and ambient lighting. Wintriss' lighting experts have developed and patented a series of sophisticated techniques and specialized lights that are optimized for surface inspection. We are the best in the industry at determining the most effective lighting solution for surface inspection applications. The clarity of the images and the contrast of the defects using these techniques result in reliable detection and accurate classification. Wintriss' patented lighting techniques expose extremely small defects which are not detected by competitive systems.
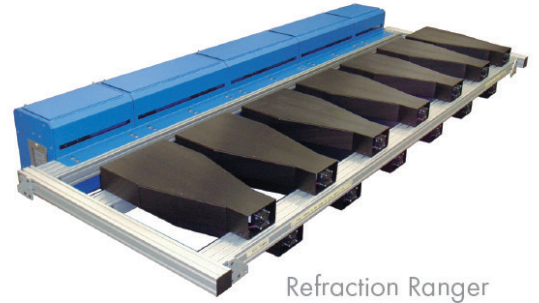
Refraction Ranger

LED Ranger Segment

PROCESSING INTELLIGENCE

- 100% real time inspection
- User-friendly operator interface
- Precise defect classification
- Powerful data-mining and visualization tools
- Built-in factory interfaces: OPC Server, SQL, Digital I/O
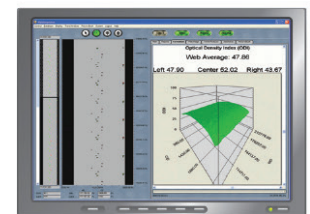
SERVICE AND SUPPORT

- 24/7 technical support hotline
- Comprehensive system warranty and maintenance
- Enhanced capabilities with software updates
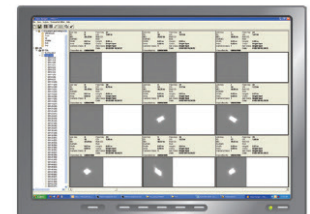
Advanced Classification
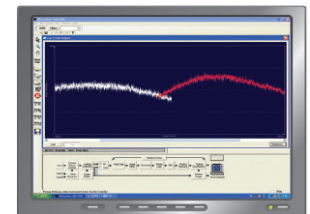
Lighting Calibration

Formation Analysis

# 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
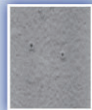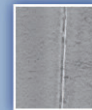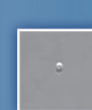
| Bumps | Contamination | Gel | Scratch | Dimple | Dirt | Fish Eye |
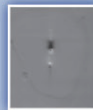
Metal

Copper Foil, copper clad laminates, polished steel belts, and coated aluminum & steel coils
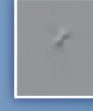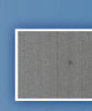
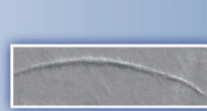| Deposit | Hole | Bump–Pit–Grease | Bump–Pit | Bump | Dent |

Nonwoven

Coated, glass mat, scrim, spunbond, wetlaid, meltblown, airlaid, and spunlace
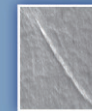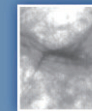
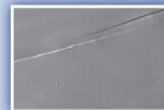| Binder Void | Clump | Heavy Rope–Oblique Light | Hydroformer Streak | Large Vein-Oblique | Twist–Back Light |

Paper

Coated, paperboard, specialty, fine, and synthetic paper
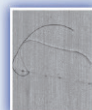
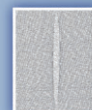| Chunks | Creases | Pin Hole | Smudge | Streaks | Water Marks |

Woven

Industrial textiles, engineered fabrics, composites, unpatterned fabrics, fiberglass
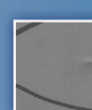
| Loose Thread | Stop Mark | Streak | End Out | Burner Trash |

Wintriss Engineering Corporation

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Phone: 858-550-7300

Wintriss Inspection Solutions, Ltd.

1F, No. 195, Xingzhong Rd.
Neihu Dist., Taipei City, Taiwan 114

Web: www.winspection.com
Phone: 886-2-8791-2000

WINTRISS*
Engineering Corporation

A History of Surface Inspection Excellence

Wintriss Engineering Corporation, founded in 1989 in San Diego, CA, USA, develops and manufactures optical surface inspection systems using smart cameras. Rapidly expanding with a worldwide presence, Wintriss has installed systems in North America, Asia, India, Europe, and the Middle East. The company's subsidiary, Wintriss Inspection Solutions, Ltd., and principal manufacturing and sales facility in Asia, is located in Taipei, Taiwan. Research and development are performed in both San Diego and Taipei.

Having developed our first smart camera in 1994, Wintriss is a pioneer in embedding image processing intelligence in digital cameras. We have created increasingly capable cameras with faster processing speed, higher resolution, and flexibility. These cameras are specifically created for surface inspection, with both continuous web and discrete piece-by-piece applications.

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

Wintriss Engineering's flagship product is the Web Ranger™ System which employs the linear scan cameras in a networked, distributed architecture. Our core competency is the in-depth understanding of optics, lighting, and image processing. This expertise and our extensive surface inspection experience enable the company to conceive and implement innovative designs to meet diverse customer requirements for surface inspection. Patents in image processing and illumination technology are the basis for the exceptional defect detection and classification performance of the Web Ranger™ System and Wintriss' market leadership in the inspection of optical films.

Do you have a surface inspection requirement? Our global sales and technical support staff are ready to help. We'll discuss your requirements and our team will show you what a Wintriss solution can do for your business. Contact us today