

SURFACE VISION

**SMART
ADVISOR®**

WEB AND PROCESS MONITORING

SmartAdvisor® is the original and proven video monitoring solution for continuous processes that helps maximize machine efficiency and yield rates. Designed for today's hands-on troubleshooter, it delivers proven and significant benefits within weeks of installation.

A versatile, easy-to-use vision system, SmartAdvisor provides high-speed, high-definition video monitoring and process analysis to the paper, board and tissue industries.

Using perfectly synchronized high-speed cameras strategically placed along the paper machine, SmartAdvisor accurately syncs video frames from each camera to generate a complete overview to help identify the root cause of web defects and breaks.

METEK®

SURFACE VISION

**GIVING YOU THE
WHOLE PICTURE**

The leading automated surface inspection partner for fast and accurate web inspection and monitoring.



KEY SMARTADVISOR BENEFITS

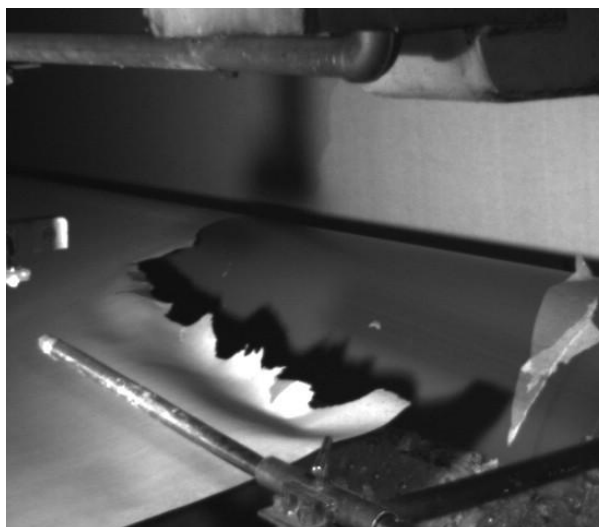
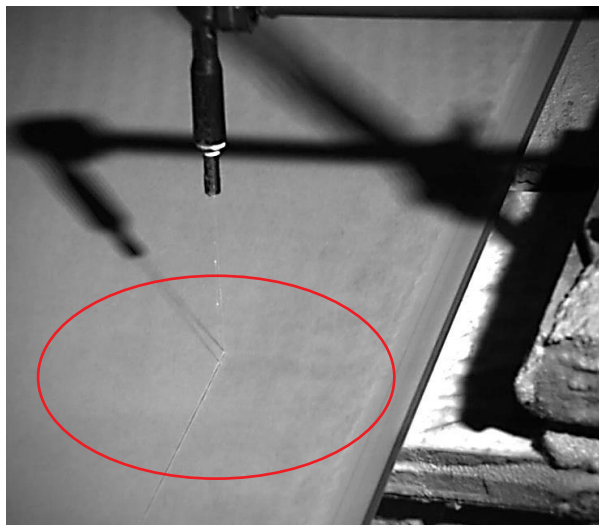
- > **INCREASED LINE EFFICIENCY/YIELD**
The SmartAdvisor image capture rate and image quality provides unique insight for a paper / board / tissue machine or converting line to identify the root cause of production interruptions such as web breaks and defects. This results in:
 - Reducing web breaks
 - Improving converting line efficiency
 - Identifying root cause of defects
 - Avoiding unnecessary capital expenditure
 - Reducing wash-up time
 - Improving line speed
- > **ACCURATE IMAGE SYNCHRONIZATION**
The use of multiple speed inputs allows SmartAdvisor to precisely and rapidly synchronize the cameras to the source of process interruptions. This supports rapid troubleshooting and allows the operator to take immediate action to prevent a further interruption.
- > **MULTIVIEW ACROSS THE PROCESS LINE**
From the control room, the operator can view image feeds from several cameras at the same time, particularly useful for monitoring cleanliness of certain key areas of the paper machine, monitoring draws, etc.
- > **INTEGRATION WITH SMARTVIEW® INSPECTION SYSTEM**
SmartAdvisor can integrate with the powerful SmartView Inspection System to deliver accurate, real-time defect detection and synchronization with web monitoring cameras. The integration provides best in class technologies for each function combined at the operator level to allow precise identification of defect cause. To learn more about SmartView visit our website: www.ameteksurfacevision.com/products/smartview.
- > **A FLEXIBLE, SCALABLE SOLUTION**
A range of SmartAdvisor solutions provide customizable system configurations to fit individual production requirements. This ensures the most capable, cost-effective installation is available for each user.



KEY SMARTADVISOR FEATURES

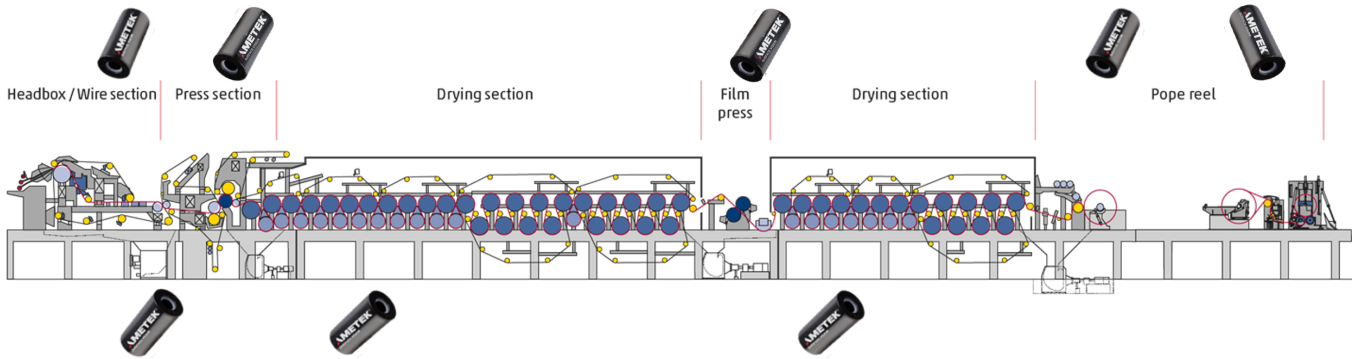
- > **REAL-TIME ROOT CAUSE ANALYSIS WITH CAMERA SYNCHRONIZATION TECHNOLOGY**
Combining strategically placed cameras from the beginning of the process to the end, with AMETEK Surface Vision's camera synchronization technology, operators can isolate and identify the cause of a defect and/or process interruption.

With any event or process trigger, SmartAdvisor accurately synchronizes events within a few frames of video from each camera, collecting them together to create one concise recorded event that documents the cause and effect around any given defect or process interruption.
- > **SIMULTANEOUS VIDEO CAPTURE AND REVIEW**
SmartAdvisor's unique large video buffer makes more than 3 days of full-resolution, full-frame rate captured video available for the user to interactively review as the cameras continue to capture video without interruption. This is critical for any local production event, process upset or physical event:
 - Identifying root cause of web breaks that may have happened hours before the actual web break
 - Troubleshooting any sheet threading issues
 - Documenting safety near-misses
 - Miscellaneous eventsShort, synchronized video clips can be automatically or manually triggered. These video clips are saved for extended periods of time, providing a complete event record. Additionally, users can export individual frames and video clips via email with others, to include as files for reporting purposes.



WEB AND PROCESS VIDEO MONITORING

SCROLL BACK CAPTURED VIDEO AT FULL RESOLUTION, FULL FRAME RATE OVER MULTIPLE SHIFTS.



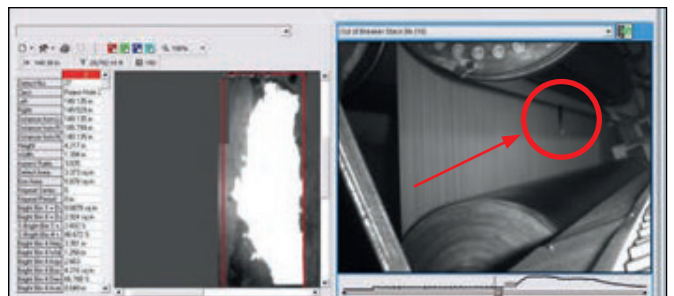
SMARTSYNC SMARTVIEW INTEGRATION
 SmartSync is a fully integrated unified vision platform that harnesses the combined power of SmartAdvisor with our flagship SmartView Inspection System. SmartSync integrates the camera synchronization and matrix technology of SmartAdvisor with the defect classification and linescan technology of SmartView to create a fully integrated solution.

Using best in class technology for each application, SmartSync users gain the synchronized, multi-camera video-monitoring power of SmartAdvisor along with the flexibility and proven quality of SmartView's industry-leading web inspection solution. SmartView's advanced classification can be configured to trigger SmartAdvisor's event capture capabilities to create a concise, synchronized video record of the event (defect). These results allow rapid analysis to determine the root cause of defects and process interruptions.

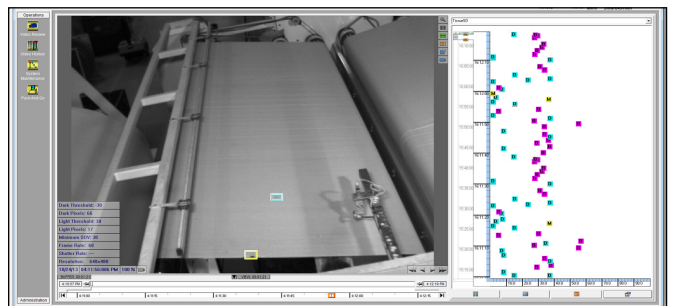
- An integrated defect fault map provides an accurate process quality overview.
- Classified defects or process interruptions are synchronized with the associated video files from upstream cameras.
- The integrated user database provides comprehensive reporting for all visual anomalies.

DETECT, CLASSIFY AND REPORT
 Process video and defect maps are clearly visible, synchronized, and color-coded to enable operators to understand the situation and take corrective action immediately. Sharing reports with others throughout the plant is just as simple using the flexible reporting features that make real-time data immediately accessible by any browser on the network in or out of the facility.

- Easily correlate defect boxes on the video with the defects or process interruptions listed in the defect map.
- Seamlessly present current and historical images to aid in analysis.
- Clearly identify defects or process interruptions to reduce waste and increase process efficiencies.



Upstream camera and final inspection camera confirming the root cause of a sheet break on a paper machine.



Upstream camera identifying incoming defects on a tissue converting line.

SMARTADVISOR FEATURES

- Monitoring and event capture
- Video history and review
- Power and temperature monitoring of SmartAdvisor system
- Automatic capture start
- Repeating defect identification
- Standard defect map

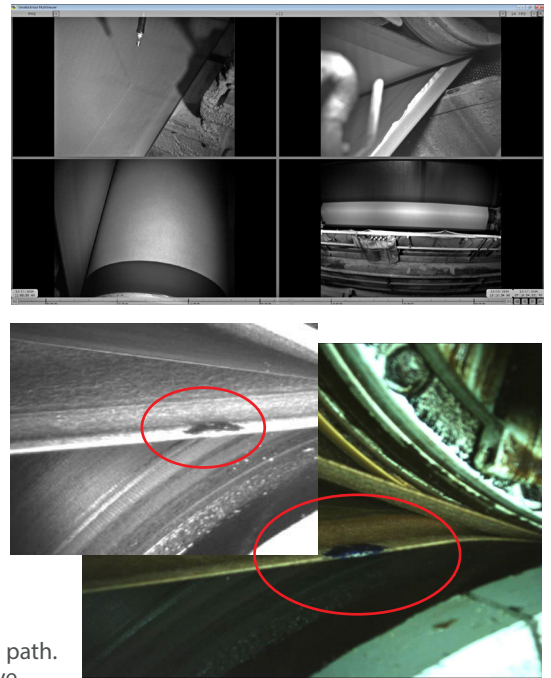


LATEST VERSION ENHANCEMENTS

SURFACEVISION

VERSION 5.2 NOW SUPPORTS

- **Windows 10 & Windows 7** - allows installation on mill networks and offers an easy migration path.
- **Fiber-optic Backbone for the Cameras** - reduces installation costs, offers higher system reliability and performance and facilitates easy modification of camera locations.
- **High-density Junction Boxes** - reduces installation cost and footprint on processing line and facilitates easy modification of camera locations.
- **High Temperature LED Lights** - increases reliability when inside high-temperature locations (dryer, etc.).
- **Higher Definition+ Complementary Metal Oxide Semiconductor (CMOS) Cameras** - improves image quality and finding the true root cause of breaks.
- **New User Interface** - enhances ease of use.
- **Higher Density of Cameras on Digital Video Processing Node (DVP) and Server** - reduces the cost of ownership, enhances reliability and supports cost-effective upgrades.
- **Multi-light and Camera Pulsing Control** - improves image quality and finding the true root cause of breaks.
- **Larger Storage Capacity for Video Review** - allows multiple hours of image storage at full resolution and frame rate.



VERSION 5.1 SUPPORTS

- **Windows 7** - allows installation on mill networks and offers an easy migration path.
- **SteadyStream™ File Storage Technology** - provides smoother playback for live video and ensures maximum system operation.
- **Each DVP Supports Multiple High Definition Monitoring Cameras** - reduces the cost of ownership and supports cost-effective upgrades.
- **High Definition CMOS Cameras** - improves image quality and finding the true root cause of breaks.
- **Latest Generations of DVP and/or Server** - delivers faster response times for the operator and prevents system obsolescence.
- **Video Sharing Supports MPEG H.264** - facilitates easy sharing of information between mill operation and other key contributors (suppliers, consultants, etc.).
- **Rule-based Classifier (Premium only) Supports over 100 Unique Features** - enhances classification and defect detection accuracy to allow appropriate action from operator and SmartAdvisor (alarm, etc.).
- **Multiviewer Updates - Brightness / Sharpness / Displayed Frame Rate Adjustments** - enhances image quality on the multiviewer screens, allows smoother image playback and offers more image configurations for the operator.
- **Multiviewer Scroll Back through Entire Buffer** - enables video review over multiple cameras at the same time to ensure true root cause identification.
- **Video Review Updates - White Balance, Precise Shutter Speed, Brightness, Contrast and Gain (Based on Camera Model)** - improves image quality with flexible image adjustments, enables ease of camera frame rate adjustment including binning, allows easy frame rate changes based on view and cameras up to 1,000 images/sec.
- **Multiple Camera Suppliers** - enables the selection of the right camera for the application (view), including high frame rate, HD, color, etc.
- **Pulsed LED Lights** - delivers crisp images from powerful lighting.



APPLICATION SUPPORT

Empower your operators to drive machine efficiency within your process by working with process experts who will help you find the right path with proven solutions.

Our engineers can help you select the perfect web and process video monitoring solution to meet your goals, customized to your unique process requirements.

**WE HAVE IT
ALL FOR YOUR
ENVIRONMENT**

ADVANCED TECHNICAL
SUPPORT

MODULAR HARDWARE
FOR TOTAL FLEXIBILITY

COMPACT HIGH
INTENSITY INDUSTRIAL
LIGHTING

POWERFUL
PROCESS MONITORING
SOFTWARE

COMPREHENSIVE DATA
REPORTS

DATA SHARING ACROSS
MILL DEVICES/WLAN

STANDARD/HARSH
ENVIRONMENT
HOUSINGS

BEST FIT CAMERAS
OPTIMIZED TO PROCESS

Improve your quality, reliability, and throughput:
ameteksurfacevision.com or contact us at:
surfacevision.info@ametek.com



AMETEK®
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