

Break detection
for pulp and paper

AFRY Machine Vision

RELIABLE WEB BREAK DETECTION

Web or sheet break detection on the paper machine is a critical task requiring precision and speed of detection. Precision is required because a false break indication can cause a break, speed is essential to avoid damage to press rolls, paper rolls or calenders and to reduce the clean-up time before the machine can be rethreaded. Reliable detection reduces machine stop time to improve productivity and operator safety.

The simplest method of detection is a photoelectrical cell at an open draw, a very economical solution but not foolproof, it requires access to both sides of the sheet and scraps of paper from a break can block the light transmission. Reflective infrared sensors have also been used to measure the paper in an open draw or on a roll, but can have difficulties when the sheet is backed by a felt fabric; the reflective difference between paper and felt can be quite small and the all too important precision is lost.

Precision break detection

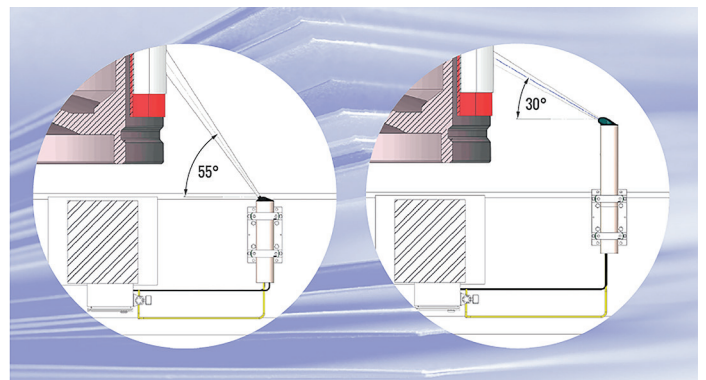
AFRY Machine Vision VISI 110 utilizes a color sensor and high intensity LED with optics, which are used to detect the web break in the shortest time. The color detection limits can be set for a variety of paper grades and fabric colors to eliminate false break signals and sensors can be located where needed to provide the fastest response to a break.



The different colors of the fabric and web provide an accurate indication of a break and reliably avoid false indications.

Optimum optical design

Unlike other available color based break detection systems, VISI 110 does not use fiber optics which can limit light output or reduce detection sensitivity. This allows the use of optimally designed optical lenses which, together with the choice of two detection angles, provides an extended sensing distance. The sensor can even be located outside the web path, on the machine frame for instance, removing the possibility of mechanical damage from a web break or interfering with tending side threading ropes.



Choice of optimum detection angle allows sensor mounting outside the web path.

Remote diagnostics and minimum maintenance

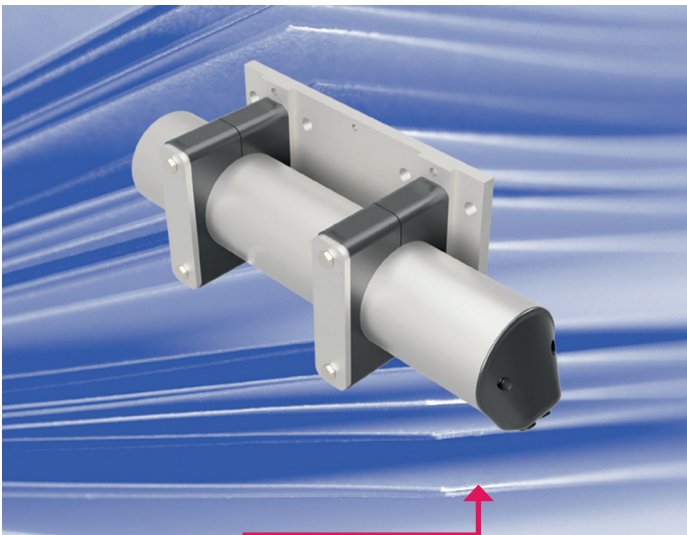
The self-cleaning sensor head features an integrated vortex cooler, with purge air fed to a computational fluid dynamics designed discharge nozzle to keep the optics clean and minimize regular maintenance. Internal diagnostics with Ethernet remote access and a browser based user interface simplifies use and alerts to abnormal conditions or need for cleaning. Extended detection distance decreases risk of mechanical sensor damage. Simple installation for use at any position in paper, board or pulp machines.

Easy commissioning

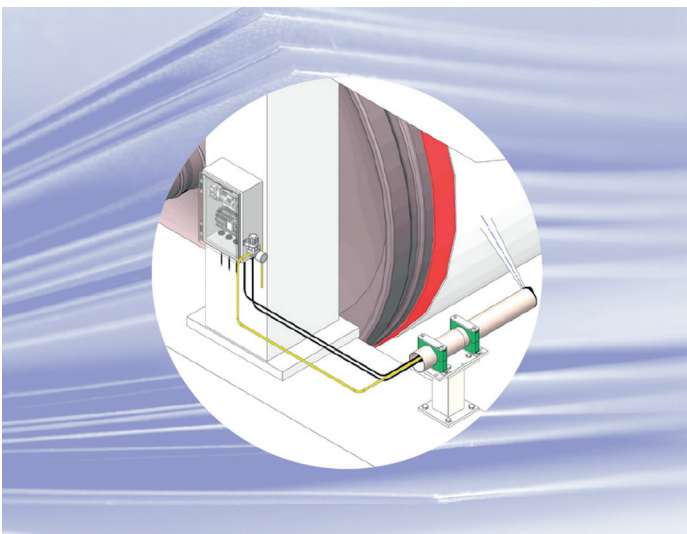
Calibration can be performed locally at the field cabinet or remotely via the Ethernet communication interface. Requires only the push of a button with the web off and then on. Break and web on window limits, as well as response time to break and web on, are all individually adjustable. With internal data logging and browser interface, precise break time data and confirmation of sensor operation provides a degree of confidence that operators can rely on.

From press to reel

VISI 110 has been specially designed for extreme conditions and space limited locations for use at any position in paper, board or pulp machines. The same web break detector can be used on open draws, rolls and felt backed webs, all the way from the wet end to the reel, both reducing spare part needs and simplifying maintenance.



Extended detection distance decreases risk of mechanical sensor damage.



Simple installation for use at any position in paper, board or pulp machines.

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Making Future