SR-INSTRUMENTS

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P-Series Detmaster System for Coated Fine Paper

Detmaster is a product family dedicated for simultaneous on-line web inspection and quality control of paper, board and pulp products. The Detmaster P-series systems are able to simultaneously detect the primary defect types such as streak, impurity, hole, spot, etc. as well as to measure critical web quality parameters such as brightness, gloss, formation, gloss-mottling, etc.

This novel approach became possible by exploiting high purity PIN diode arrays having large dynamic range and high signal to noise ratio. The large dynamic range and the new frequency multiplexing method enable the parallel and simultaneous exploitation of several different illumination geometries in a single detector frame, which makes the system cost efficient compared to the conventional technologies and methods for the same purpose. Furthermore, the ambient light doesn't disturb the measurement since PIN diode arrays are locked to receive only the frequencies from the system's illumination sources.

The unique Detmaster technology provides for coated fine paper inspection excellent tools to reveal various defect types as well as surface quality parameters. The technology enables for coated top and / or bottom surface inspection simultaneous utilisation of 2 illumination angles (reflective and diffuse), 2 frequencies (one for each illumination angle) and 2 illumination wavelengths (white light and ultraviolet light). All this is integrated into a single detector beam, which makes the Detmaster system extremely cost efficient compared to the conventional solutions.

The aforesaid single beam solution enables detection of all the most hazardous defect types such as blade streaks, glossy streaks, missing coatings, delaminations, dark spots, bright spots, glossy spots, matt spots, impurities, holes, optical brightening agent spots and even streaks of the lower coating layers as well as measurement of surface quality parameters such as gloss, brightness and gloss-mottling. The optical brightening agent spots and streaks of the lower coating layers are revealed with ultraviolet light when optical brightening agent is used for concerned coated fine paper manufacturing. Furthermore, ultraviolet light improves remarkably the blade streak and glossy streak detection on a topmost coating layer. The conventional competing technologies can't exploit ultraviolet light wavelengths for defect detection purposes.

When the optical brightening agent is used for coated fine paper manufacturing it has a characteristic behaviour to build up in streaks, and therefore, the ultraviolet light illumination facilitates remarkably the revealing of the streaks based on the fluorescence phenomenon, which is typical for the optical brightening agent.

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Please find below a picture of a single beam Detmaster solution for coated fine paper inspection installed against a roll.