

HYPERSPECTRAL DESKTOP SCANNER FOR QUALITY CONTROL

Hyperspectral imaging aids specific quality control in laboratory environment. The desktop scanner system is developed by DV s.r.l. (Italy). Utilized technology: SPECIM's ImSpector V10E imaging spectrograph and high performance CCD camera combined with fiberoptic light line illumination and x-stage.



Desktop scanner system, ceramic inspection

Spectral cameras are used in various hyperspectral flatbed desktop scanners. The spectral camera works as a line-scanner and produces full spectral information of the sample, which is acquired by scanning the target line by line.

The image is focalised and acquired as in a normal scanner line by line by a split; ImSpector optic divides the radiation of every point on the line in its spectral components, whose intensities are getting out from a matrix bidimensional camera. The most common way is to keep the spectrograph and illumination in one place and use a motorized X-Y stage to accurately move the target. Acquisition software controls the stepping motion and

registers data for on-line or later classification. The X-stage moves the sample under the spectral camera, which records spectral line images that are acquired and stored when the sample is moving.

Scanning of the sample produces 2D spectral image sample from the single lines. Each pixel in the constructed spectral image includes full spectral information (spectral signature) of the sample.

Applications where desktop scanners can be used, are related to specific quality control, measurements and inspection of several different kinds of targets; artwork, wood, ceramic tiles, fabric, printed materials, counterfeit detection.

Basic components

- ImSpector imaging spectrograph and CCD camera
- fiberoptic light line illumination
- X-stage



Scanner system and scanned data