

Video System for contactless strain measurement & control

Technology Overview

VE23 is a high speed video based system that produces an analog output for use with TestResources 2350 servocontrollers equipped with special control software extensions.

The video unit, when used in strain control applications, requires a dedicated PC for signal processing. It may be applied to single axis and planar biaxial test scenarios and specimens.

The technique employs white-light speckle correlation, so actual object in-plane movement is measured and the Lagrangian strain tensor available at every point on the surface.



VE23 measures displacements and strains from 500 microstrain to 500% strain and above, for specimen sizes ranging from smaller than 1 mm to very large samples. Strain measurement accuracy is typically better than 0.02%. Setup is simple and requires only an applied random speckle pattern on the specimen. No special illumination or lasers are required.

The **VE23** system is used on flat specimens. It has been proven in fatigue tests to 1 Hz. The camera processing produces an analog output at 30 to 50 samples per second.

Applications include fracture mechanics (COD measurement), tissue testing, film tests, planar bi-axial research, and determination of strain localization around cracks or notches as well as many applications in FE model verification.

- White-light system does not require lasers
- No calibration required
- Simple specimen preparation - using paint
- Available analog output for machine control
- Very high strain and displacement limits
- Sample size <1mm and >10m possible