



# DIGITAL IMAGE CORRELATION

## TEMA DIC 2D SYSTEM

Digital Image Correlation (DIC) is a full-field image analysis method, based on grey value digital images, that can determine the contour and the displacements of an object under load. DIC is very effective at mapping deformation in macroscopic mechanical testing, where the application of specular markers provide the needed contrast to correlate images.

Image Systems proposes a complete turn-key system including all necessary hardware and software.

### ACCURATE RESULTS

The tracking algorithms used in TEMA have been developed and refined for close to 30 years. Today, TEMA is the most accurate and feature-rich Motion Analysis software currently available. DIC measurements can reach to accuracy levels of 0.01 pixels.

### POWERFUL TOOLBOX

The modularity of the software gives the user an almost unlimited number of application areas. TEMA DIC includes the most powerful point tracking software on the market along with the surface (DIC) tracking module.

### WIDE COMPATIBILITY

TEMA is compatible with all major camera brands on the market. Moreover, the software suite is capable of capturing and controlling image sequences from multiple camera makes - all in one single system.

### EASE OF USE

The TEMA user interface is designed to be flexible and intuitive to any person who is familiar with basic Windows functionality and workflow.

### USING TEMA DIC SYSTEM

The system is designed for easy set-up and use. The components are delivered in appropriate transport cases for increased portability.

### SYSTEM COMPONENTS

- 1pc 2MP 30fps camera
- 1pc 25mm lens
- 1pc 50mm lens
- Calibration board
- Lightning system
- Portable computer
- Tripod with accessories
- Speckle paint
- Dongle sw licenses
- Cabling and power support

### SET-UP

The user applies a speckle pattern onto the area of interest using a non-destructive special spray provided by Image System.

Camera and lightening are mounted on the stable and flexible 3 axis geared head, attached to perpendicular bar, with rough and fine position tuning. Calibration is made to correct both lens distortion and angled motion plane deviation between the camera and the specimen. This feature is unique for TEMA DIC and enables the 2,5D tracking possibility. All is done using integrated real time camera control software with live error estimation feedback for each test and setup. Digital image correlation analysis is then made in the same one platform and you will instantly retrieve the numerical and graphical results. In addition to the DIC analysis, the existing world leading point tracking features of TEMA is of course available seamlessly in the software.

### APPLICATION EXAMPLES

#### Material properties

- DIC offers characterization of material parameters far into the range of plastic deformation. Its powerful data analysis tools allow the determination of the location and amplitude of maximum strain, which are important functions in material testing.

#### Fracture mechanics

- DIC is ideal for fracture mechanics investigation. The full-field measurement delivers exact information about local and global strain distribution, crack growth, and can be used for the determination of important fracture mechanics parameters.

