



# TEMA AUTOMOTIVE

## The obvious solution to image analysis when motion counts

TEMA Automotive (TEMA) is the market-leading software suite for advanced Motion Analysis tests in the automotive industry. Thanks to its high accuracy, modular structure, calculation speed and intuitive user interface - TEMA is used by professionals across the globe in a wide range of Automotive Testing applications. Combined with our 3D Scanner (optional) it allows the integration of 3D models in diagrams for a complete analysis and understanding of the behaviour of the object of interest in its environment.

### Key benefits

- Easy to use, modular
- Unlimited number of trackable points
- Wide range of tracking algorithms
- Most accurate software on the market
- Possibility of creating templates
- Various table & image export formats
- Compatible with all major HS cameras

### From images to results

From loading an image sequence, executing the tracking algorithms, applying the chosen analytics and logic to presenting the derived data - TEMA offers a straightforward workflow. Menu bars, tool bars and key bindings all provide a easy access to features and functions. The user interface is fully synchronized: any change of parameters or set-up will directly effect all parts of the tracking session, updating results, graphs and tables.

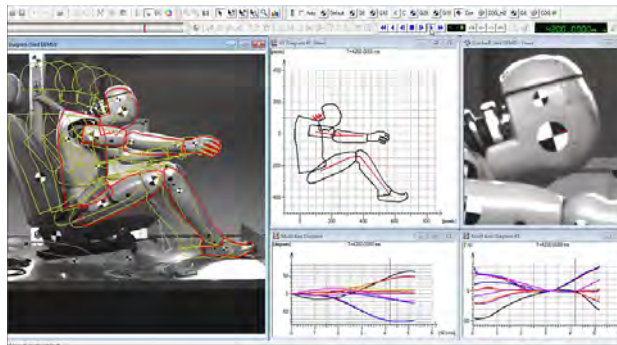
## A powerful tool tailored to your needs

The operator has full control of the tracking in TEMA with many options and possibilities to tailor TEMA to specific applications and needs. New features and functionality is added continuously such as the integration of 3D scanned data. TEMA has a very powerful set of different tracking algorithms available such as Correlation, Outline, Quadrant Symmetry, Center of Gravity etc. By using the integrated lens calibration tool, data accuracy can be kept at a maximum and the results are traceable. Tracking can be analyzed in 2D, 3D and 6D. Our proprietary TEMA Static survey technology allows for 6D. Motion Analysis of a rigid body using a single camera.

Control multiple camera brands and multiple camera models at the same time through one single user interface using TEMA Camera Control feature.

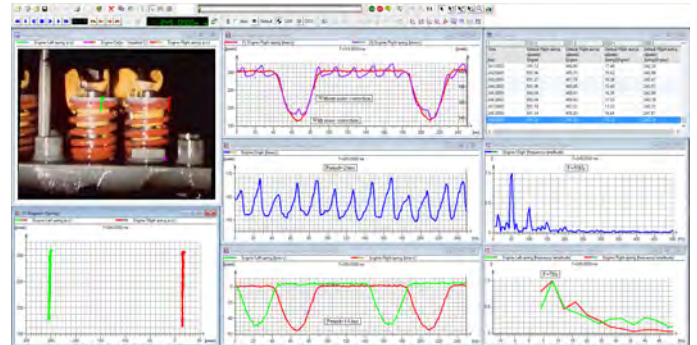


# APPLICATION EXAMPLES



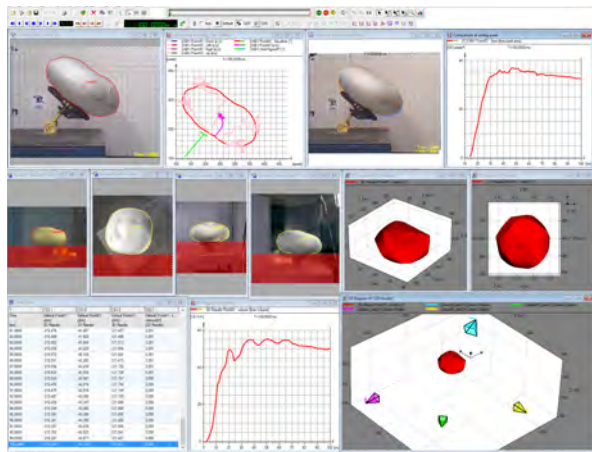
## Crash and sled tests

Position, velocity, acceleration, relative angles and distances can be calculated using TEMA and displayed in various diagrams and tables. By using Virtual Point or Contour algorithms, the position of any given point of a rigid body can be calculated with accuracy even though it is hidden in part of the movie like the dummy nose during the crash for instance.



## Springs, injectors and vibration analysis in engines

By using user defined static/dynamic coordinate systems the relative movement of springs or mechanical parts in the engine can be calculated with accuracy. This feature is particularly useful for image stabilization if the camera is shaking or to get rid of noise components in the movement. Fast Fourier Transform can be applied to measure the frequency of oscillating movements.

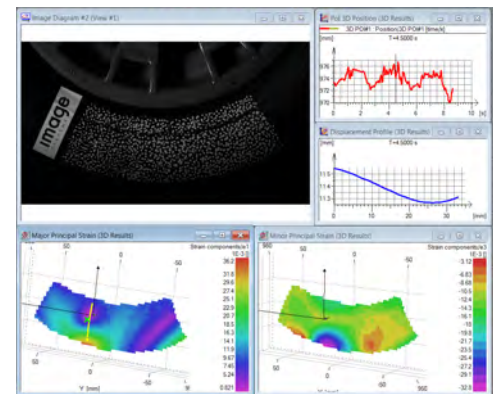


## 2D & 3D Airbag deployment tests

The outline algorithm in TEMA allows the tracking of any contrasted shape such as airbags, fumes, flowing liquids, bubbles and so on. The center of gravity, area, circumference, extreme points, angle and rotational volume can be retrieved in 2D analysis. If several views are combined, the volume of the shape can be calculated and represented by a hull. It is also possible in TEMA to overlay sequences of images in order to compare repetitive tests.

## Tire analysis (DIC system)

TEMA Digital Image Correlation allows to follow in large field and without any contact the behavior of any material under constraints in 2D or stereo. By following the deformation of a contrasted speckle pattern applied on the surface of the material, displacement, strain analysis and the mechanical properties of the tested object can be determined with 0,01 pixel accuracy.

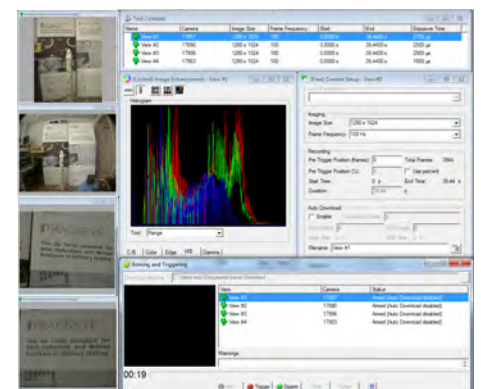


## More applications

- Automotive industry
- Component R&D
- Pedestrian impact tests
- Whiplash tests
- Seat belt tests
- CAD model integration

## Camera control

TEMA Camera Control can control all the major HS cameras on the market, all at the same time, with no limitation of number and from one single interface. Its user-friendly interface allows the user to record and view live images, set up parameters, snapshots, image enhancement as well as automatic downloading of the sequences



## Learn more



[www.imagesystems.se](http://www.imagesystems.se)



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