3D WAND

Camera calibration tool

Image Systems 3D Wand calibration tool removes the often complex and time consuming aspect found in traditional 3D Motion Analysis test preparations - such as lens calibration and camera orientation activities – with an automated and precise calibration method. The tool consists of a software module, compatible with TrackEye and TEMA Motion Analysis platforms, as well as a hardware device, the wand.

Key benefits

- No setup time, no marker needed
- Fast, automatic and easy to use
- High accuracy
- Calibrate lens distortion & camera orientation
- Unlimited number of cameras (⩾2)
- Generate calibration accuracy report
- Compatible with all major HS cameras

Quality material and design

The carbon fiber construction and the active markers based on LED technology gives a robust, high quality wand that can be used for many years. The system supports measurement volumes from 1x1x1 m to 10x10x3 m (w x d x h). Also supports any number of cameras (two is minimum) regardless of the model, frame rate or resolution. The Wand calibration computes all camera parameters simultaneously, as well as statistics and tolerances of the entire system.

Complete solution

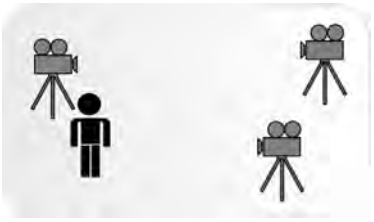
- Calibrated carbon fiber tube with LED bulbs
- Carbon fiber holding stick
- Batterie pack
- Allen key & screw to assemble the wand
- Rugged carrying case

APPLICATION EXAMPLES

Procedure step by step

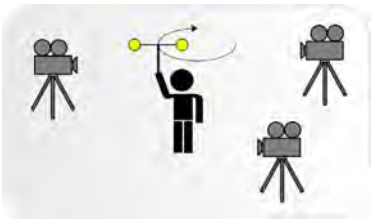
1. Position cameras

Position two or more cameras for the test and set the final zoom, focus and aperture. Choose camera positions so that the points of interest on the test object will be visible from two or more cameras during the test. Theaccuracy of the analysis depends on the geometry between the points and the observing cameras: 90 degrees angles are optimal, 30 degrees – 150 degrees angles are acceptable.



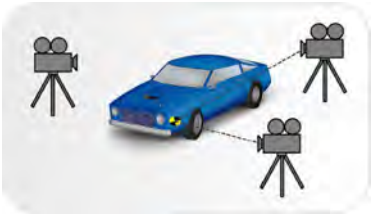
2. Record calibration images

Make a synchronized recording from all cameras. Move the wand in the entire measurement volume for approximately 20 seconds at frame rates of 25 – 50 Hz. Set exposure time to less than 2 ms to maximize contrast and avoid motion blur. Use regular room lighting.



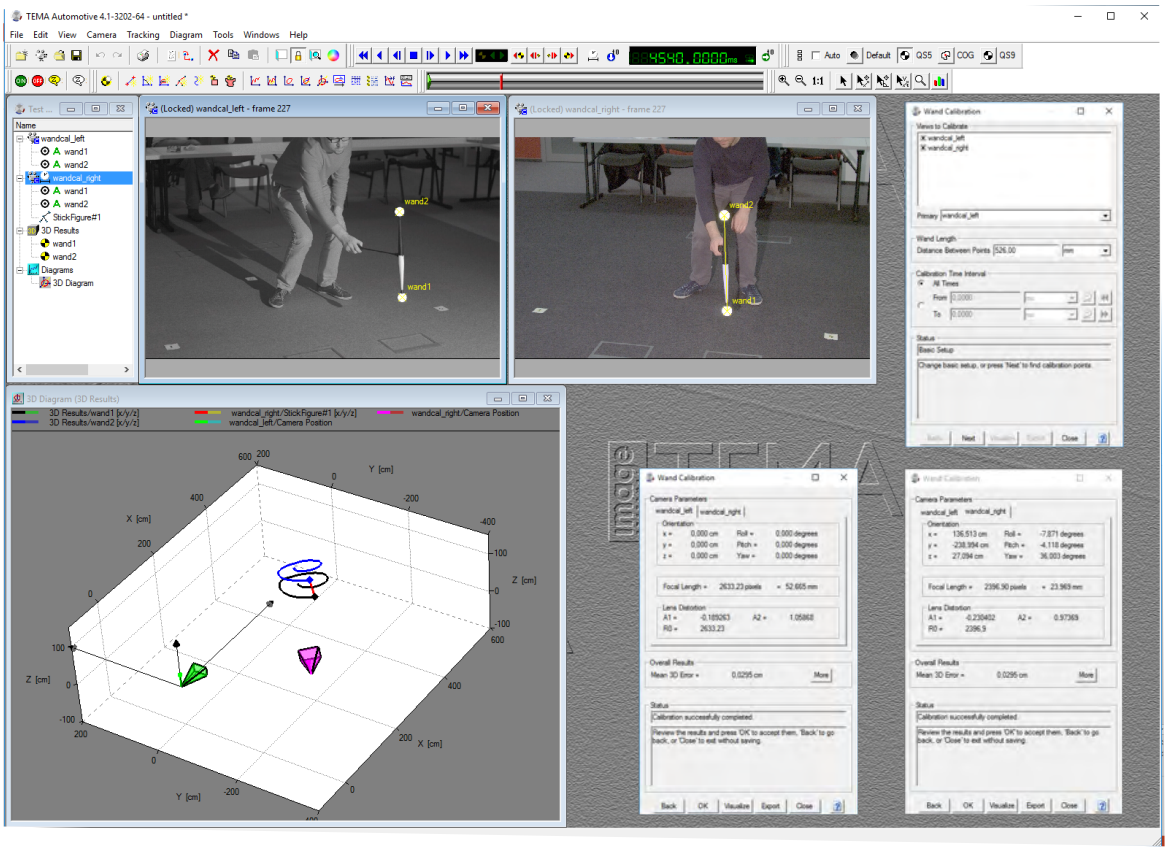
3. Record test images

Set the final frame rate and exposure time for the test.
Don't adjust the other camera settings or move the cameras. Perform the test and make a synchronized recording from all cameras.



4. Analyze test results

Load the calibration images into TrackEye or TEMA and automatically calibrate the system for camera position and orientation and lens distortion. Proceed to load the test images to analyze the points of interest in the test images. 3D results are computed for each point that is tracked in two or more cameras. Note: The calibration can be reused in future tests as long as the camera setup and positions are not altered.



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