

ANCO Vision: Video-Based Non-Contact Vibration Measurement

ANCO Vision allows recording vibration during shake table tests using high speed video cameras. Post processing edge detection algorithms allow the user to process multiple regions of interest (ROI). This is useful for modal analysis of test items and remote displacement measurements on seismic shake tables, and other dynamic tests.

Features

- Interfaces with high speed digital cameras (such as provided by Basler) or with any user-supplied avi file.
- Allows the definition of multiple ROI's with horizontal, vertical, or angled orientations.
- Semi real-time processing of multiple ROI's each resulting in displacement time histories in engineering units
- Either absolute motion, or motion relative to shake table base can be displayed
- Each ROI can be enhanced in contrast and exposure to aid edge detection
- Calibrate each ROI to obtain actual displacements for objects at different depths
- Post-processing algorithms allow band-pass filtering, conversion to velocity and acceleration, and Fourier transforms
- Results can be exported to text or Excel files
- Derives mode shapes based on selected ROI's at specific frequencies as derived from FFT's
- Produces animated, multi-point time history display of structural response
- ANCO Vision runs on Windows-based PC or real time target
- ANCO can provide full camera/PC/software systems, or individual components and processing services

The screenshot displays the ANCO Vision software interface. On the left, a video feed shows a test item on a shake table with a 'Region of Interest' (ROI) defined on its vertical structure. The ROI is a white rectangular area. Below the video feed are controls for brightness, contrast, and gamma, along with buttons for 'Take a Screenshot', 'Take Photo', and 'Take Video'. The bottom left shows 'Setup Scheduler', 'Video Scheduler', and 'Photo Scheduler' buttons. The right side of the interface contains a control panel for the ROI. It includes a table for ROI parameters, a table for calibration points, and a table for displacement data. Below these tables is a graph showing 'Displacement [EU]' versus 'Time [s]'. The graph displays a blue line representing the displacement over time, with a peak around 10 seconds. The bottom right corner has an 'Export Data' button.

ROI#0	ROI Name	Direction	Displ [EU]	Angle [°]
ROI0	ROI0	Top->Bott	0.043268	-1.260036

ROI#0	First Edge Rate
	Step Size: 1
	Min SNR: 0 dB
	Orientation: 0 °
	Angle Range: 45 °

ROI#0	Cal Point 1	Cal Point 2
	1: 158	2: 214

ROI#0	Displacement [EU]	Damping [%]
		0.1 %
		Freq. Step: 0.1 %
		Start Freq: 0 Hz
		End Freq: 0 Hz

ROI#0	Time [s]	Displacement [EU]
	0.0	0.0000
	5.0	0.0000
	10.0	1.5000
	15.0	0.0000
	20.0	1.5000
	25.0	0.0000
	30.0	1.5000
	35.0	0.0000
	40.0	0.0000