

RECOIL 1 Measuring system

Technician description:

- system for measuring motion (distance, velocity) different visible parts of the weapon during function,
- **optical method** – parts of weapon are not affect by this measuring method,
- using high speed camera,
- it is possible to **determine motion and recoil** of the weapon in **shooter's hands** or in special equipment,
- measuring of trajectory and velocity depends on time of gun recoil and evaluation of its momentum and kinetic energy ,
- software is suitable for measuring **absolute, drift and relative motion**, for each of them is evaluated a trajectory and velocity in time.

Technician parameters:

- **automatic track** of 5 points,
- reliable identification of difference of the brightness has to be at least 30 (light conditions)
- accuracy up to 0.1 mm,
- velocity up to 1000 m.s⁻¹ – depends on HS camera,
- recommended rate of camera – at least 2500 fps,
- minimal size of the point for measurement is 16 pixel,
- application for Windows 2000 and upper, CPU 2,0 GHz, RAM 2GB.

Next possibilities:

- compatible with tif, bmp, jpg images format and with AVI noncompressed video format,
- calibration is made in first image by choosing calibration points,
- calibration is possible to make only from one point,
- selecting range from all capture frames,
- there are two points for stabilization of the measurement,
- there is a special software possibilities for sometimes disappearing points during measuring,
- user can enter required units for evaluation,



Windows for choosing points for measurement

Measuring system consists:

- Software for evaluating **Motion measurement**,
- **high speed camera** with necessary equipments (lights, flash lamp, tripod, lens etc.) suitable for this measurement and also for other **analysis of the ballistics and weapons problem**,

Additional equipment for measuring:

- special stand for measuring recoil of the weapons up to caliber 20mm based on STZA,
- special trigger unit PTU-1 for camera triggering,
- flash detector.

