



Fig. 3. Electronic measuring system.

pulses came from a pulsed constant current source in series with a 10 ohm load resistor at the target position. Voltage across the resistor was first monitored by a digital voltmeter (NLS Series X-3) with the current source in a continuous mode. Then in single-pulse mode the voltage step was recorded on the oscilloscope. Calibration was usually completed within one hour after the shot.

Data reduction of shot traces and calibration traces began by reading the photos on an x-y traveling microscope. Each photo was referenced to the graticule center so that shot and calibration photos had the same coordinate origin. Shot trace coordinate pairs along with voltage and time calibration values within each time division were fed into a computer program which converted the shot-trace coordinate pairs to voltage-time pairs.