

Abstract Submitted  
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**Integrated Multi-electrode Circuit for Velocity Measurement**

ILAN BE'ERY, GAL GOLDSTEIN — The accurate measurement of detonation and shock velocity is a common practice in shock physics. In many cases this is done using many shorting pins or electrodes. We present several techniques for the integration of up to 20 shorting electrodes into a single circuit with a single output channel. This integration simplifies the experimental assembly, increases accuracy, and saves space and cabling. We present the “parallel” and “serial” integrating circuits and discuss the relative benefits. Each of the two basic circuits can be equipped with additional components to monitor and validate the circuit's integrity. The realization of three shorting mechanism is demonstrated: direct contact, self shorting, and shock conduction of polymer. We bring several examples of experimental results which demonstrate an accuracy and repeatability better than 10<sup>-3</sup> in velocity measurements.

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