

Abstract Submitted
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Optically Isolated Control of the MOCHI LabJet High Power Pulsed Plasma Experiment¹ EVAN CARROLL, MORGAN QUINLEY, JENS VON DER LINDEN, SETTHIVOINE YOU, University of Washington — The MOCHI LabJet experiment designed to investigate the dynamics of astrophysical jets at the University of Washington, requires high energy pulsed power supplies for plasma generation and sustainment. Two 600 μF , 10 kV DC, pulse forming, power supplies have been specifically developed for this application. For safe and convenient user operation, the power supplies are controlled remotely with optical isolation. Three input voltage signals are required for relay actuation, adjusting bank charging voltage, and to fire the experiment: long duration DC signals, long duration user adjustable DC signals and fast trigger pulses with $< \mu s$ rise times. These voltage signals are generated from National Instruments timing cards via LabVIEW and are converted to optical signals by coupling photodiodes with custom electronic circuits. At the experiment, the optical signals are converted back to usable voltage signals using custom circuits. These custom circuits and experimental set-up are presented.

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