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SPLITS - RECONFIGURABLE 5.5 OHM SERIES PULSE FORMING LINES FOR MULTIPLE 300KV PULSE CREATION

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The Series Pulse-Line Integrated Test Stand (SPLITS) comprises a set of four, 5.5ohm coaxial pulse forming lines that are each capable of producing a -300kV pulse when driving a matched resistive load. The hardware's modular design allows series configurations for driving multiple pulses into a common load. The water filled pulse lines are discharged by SF6 insulated laser triggered gas switches that allow long charge times up to 4 micro-seconds with high precision and high reliability. Such charge time allows them to be charged by either a Marx or pulsed transformer circuits.

The design of the pulse lines and configurability is described. Test results demonstrate single line and series operation, gas switch trigger (jitter and pre-fire rates) and maintenance, pulse shaping ability, and post pulse damping. Simulations made using a circuit model reproduce measured voltages and currents.

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