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## 8-Stage Pulse Generator for Generation of Bipolar Rectangular Pulses

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For lab-scale experiments related to the decontamination of liquids from bacteria an eight-stage pulse generator for generation of bipolar rectangular pulses has been set up. The generator consists of stacked modules in H-bridge configuration. For ground-symmetric operation of the load the generator has been grounded at its center. This is especially important when connecting a PEF-treatment chamber for continuous treatment of a liquid with plate-type electrodes to the generator. The generator has been designed for a charging voltage per stage of 1 kV and a pulse current of up to 600 A. It is able to generate bipolar pulses, each with an adjustable pulse length of between 1  $\mu$ s and 10  $\mu$ s and an adjustable time between both pulses. The generator is capable of a pulse repetition rate of up to 200 Hz. Under full load conditions a rise time of both voltage and current across a resistive load of 120 ns (10% to 90%) has been measured. The inner inductance of the generator has been determined to be 0.1  $\mu$ H per stage. Each stage of the generator has been equipped with an independent over-current protection. To test this feature, four stages i.e. one half of the generator has been operated in single pulse operation with its output shorted to ground. A short-circuit current of up to 1.7 kA has been interrupted successfully several times. In the contribution selected design details and results of first tests of the generator will be presented.

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