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Design of Time Sequence Discharging Control System for Pulse Power Supply Modules

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As the development of pulse power technology, the pulse power supply modules (PPSM) are widely used in areas of scientific research, medical treatment, industry, military, and geological prospecting. In these areas, more and more energy is needed and the number of PPSM is increasing rapidly, and the accurate pule discharging waveforms are required in some applications. How to control so many PPSM to discharge in precise time sequence effectively to obtain the waveform becomes one of the key in the pulse power technology.
According to the requirements of a pulse discharging velocity source, a time sequence discharging control system is designed, which can control 30 PPSMs to discharge in a precise time sequence. In this control system, the digital signal processor (DSP) is used as the main control chip and the high speed photoelectric converters and optical fibers are used as the trigger signals transmission system. The time sequence can be set by using the upper computer software and the accuracy of the trigger pulses can reach to microsecond level. This control system is used in the actual experiments of the speed source and the results proved that the control system is effectively.

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