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Control System and Diagnostic Tools of Pulsed Power Supply for TPS Pulsed Magnets

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Taiwan Photon Source (TPS) is the latest-generation 3-GeV synchrotron light source. Pulsed power supplies to control injection and extraction of the TPS pulsed magnets have been designed and implemented. The experimental physics and industrial control system (EPICS) embedded programmable logic controllers (PLCs) were developed to control the pulsed power supplies. The control interface is remotely accessible with EPICS client tools. The timing system provides synchronous trigger signals for pulsed power supplies. Data acquisition system with EPICS support are employed to observe the output current of the pulsed power supplies. The control system of these pulsed power supplies satisfies complete system integration, rich graphical user interfaces and useful diagnostic tools. It has been running with no down time since mid-2014, which indicates high reliability. A detailed description of control system, operational interfaces, real-time monitoring system and diagnostic tools for the pulsed power supplies is presented in this paper.

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