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The Development of a monitoring system for poloidal Field Power Supply

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Inspired by the ITER Control, Data Access and Communication (CODAC), Experimental Physics and Industrial Control System (EPICS) has been chosen for the control system. The monitoring system is a important subsystem of ITER poloidal Field(PF) Power Supply(PS) system which can real-time monitor and control PF power supply running , timely warning, abnormal positioning, support multi-user configuration operation and has a good cross-platform portability and scalability. All nodes operate in a synchronized manner by using Time Synchronization Network (TSN) which based on IEEE-1588 protocol, are connected via a dedicated timing network. And moreover, the monitoring system also acts the role of Plant System Host (PSH), which helps non-EPICS controllers to keep working in ITER PFPS control system. EtherCAT Fieldbus is used in the field layer, which improves the real-time performance and reliability of the system. The asynDriver is used to develop interfacing device specific code to hardware driver. The test shows that the monitoring system has good performance during experiments and convenient human-machine interface to satisfy the requirements of all the experiments. In this paper, a description is given of the prototype ITER PFPS remote monitoring system that has been implemented on the experiments.

Eligible for student paper award?

Yes

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