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Development of Readout System for Target Multi-Wire Scanner Beam Profile Measurement of CSNS-II

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Target Multi-Wire Scanner is a beam diagnostics device in the CSNS-II accelerator, designed to measure the pre-target beam profile. This paper details the hardware composition, software architecture, and beam-target interaction test results of the CSNS-II front-end multi-wire scanner readout system. In contrast to the CSNS predecessor, the upgraded system employs a hybrid software architecture combining a LabVIEW-based signal acquisition platform with a standardized EPICS Input/Output Controller (IOC) developed in C. The LabVIEW software handles signal acquisition and front-end electronics control, while processed data is transmitted to the EPICS IOC for standardized data publishing. This architecture enhances system stability and ensures reliable EPICS-based data interaction, demonstrating an optimized instrumentation framework for high-precision beam diagnostics in high-power proton accelerators.

Footnotes

Funding Agency

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Yes

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