

Control software design based-on EPICS and CS-Studio for HEPS booster RF system

Wednesday, October 25, 2023 2:42 PM (4 minutes)

High Energy Photon Source is a 6 GeV fourth-generation synchrotron light source currently under construction in Beijing, China. It consists of a 500 MeV electron linear accelerator, a booster ring, a storage ring, and multiple beamlines. In the booster, three 499.8 MHz normal-conducting cavities have been installed in the tunnel with each driven by a 100 kW solid-state power amplifier. A digital LLRF system is used to regulate the RF field inside the cavity. PLC is used for slow signal acquisition (such as temperature, water flow-rate, and etc), while fast acquisition for RF signals is implemented with a new data acquisition system. The RF operator interface is in-house developed by using CS-Studio to monitor and control the RF system and its components such as LLRF systems, SSAs, cavities, etc. A total number of ~10000 PVs from all six RF stations are collected by the EPICS IOCs and subsequently stored via the EPICS Archiver Appliance. The design of the control software and the operator interface for the HEPS booster RF system is presented.

Keyword

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Session Classification: Posters

Track Classification: Software