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Modernizing of magnet power supplies at KARA and a transition to EPICS-based control system

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This paper presents a study on the upgrade and modernization of the magnet power supplies of the KARA (Karlsruhe Research Accelerator) storage ring. The existing power supplies, which have been in operation for more than two decades, were facing obsolescence and operational limitations. To ensure the continued availability and reliability of the facility for the next decade and beyond, a comprehensive refurbishment was required.

The project involved the replacement and upgrade of the power supplies for the dipole and sextupole magnets at KARA, as well as for the dipole and quadrupole magnets in the booster. A key aspect of this modernization effort beside an improvement in efficiency and stability is the migration from a custom control system to EPICS running embedded on the power supplies.

This paper provides an in-depth analysis of the motivations, goals, and technical aspects of the power supply modernization project as well as first measurements with the new power supplies and the project status.

Footnotes

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