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## The Electronics Design of Magnetic Field Active Control System in KTX Reversed Field Pinch

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Keda Torus eXperiment (KTX) is a new reversed field pinch (RFP) plasma scientific device at the University of Science and Technology of China. Resistive wall modes (RWMs) and tearing modes (TMs) of RFP configuration limit the increase of discharge duration.

The objective of this paper is to introduce a new electronics design that is a main part of magnetic field active control system. The system can prolong the discharge duration and improve the confinement performance by feedback controlling RWMs and TMs in real time in KTX. The electronics system is based on the work station and PCI extensions for instrumentation express (PXIe) chassis. FPGA is the central part of the whole system to control all the process, including data acquisition from the magnetic probes, high-speed data transmission and data summary processing in real time. FPGA gives a feedback to the external power amplifier after PID control to change the voltage of saddle control coils.

Result indicates that data transmission speed is able to meet needs of the system. More tests are in progress to prove that the system could successfully achieve fast calculation with lower delay.

### Minioral

Yes

### IEEE Member

No

### Are you a student?

Yes

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