

7 - 11 SRing Electron Cooler High-end Power Supplies Control System Design of HIAF

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Electron cooler^[1] high-end power supplies include collector, anode, grid, suppressor and filament power supplies, those power supplies operate on a 600 kV high voltage power platform. In this special environment, traditional control structure is not easy to meet need.

To achieve the control system smoothly, those power supplies use one master controller and two slave controllers to be Controlled. Master controller is responsible for external communication, power supply system switching, interlock, grid and controlled suppressor power supplies. One slave controller is responsible for collector power supplies because it's max power at 10 kW. The other one is responsible for anode and filament power supplies. The structure is showed in Fig. 1.

All control variables are programed in Modbus protocol with uniform address. Right now, we have finished production and processing, it will be final assembly in the second half of 2023.

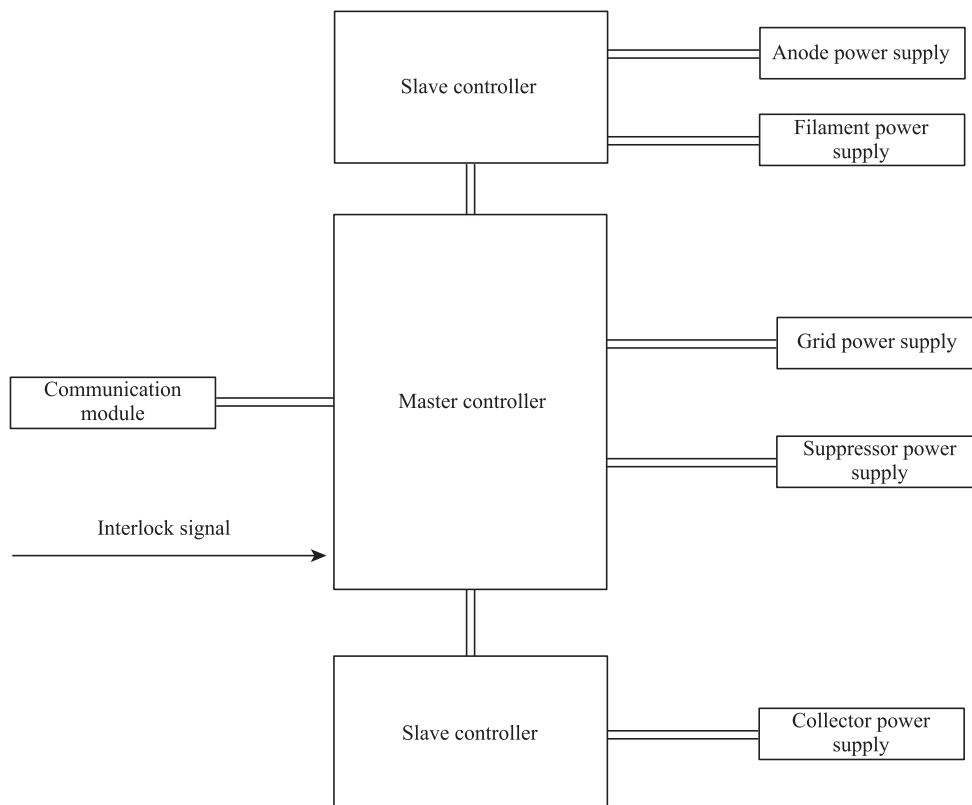


Fig. 1 Electron Cooler high-end power supplies control structure.

Reference

- [1] L. Mao, J. Li, H. Lu, et al., The Electron Cooling System for the HIAF Project in China[C]//12th Workshop on Beam Cooling and Related Topics (COOL'19), Novosibirsk, Russia, 23-27 September 2019. JACOW Publishing, Geneva, Switzerland, (2019)14.