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## Implementation of EPU56 control system at the Taiwan Photon Source

*Thursday, 23 May 2024 16:00 (2 hours)*

The elliptically polarized undulator with a period length of 56 mm, called EPU56, is part of the Taiwan Photon Source (TPS) phase-III beamline project. Its control system is built within the EPICS framework using motion controllers and EtherCAT. The control systems of EPU56 include a safety interlock system, which automatically stops movement based on limit switches, torque limit switches, emergency stop button, and readings from the enclosed linear optical encoder. In addition, the control system offers settings for adjusting the correction magnets' power supply and employs optical absolute encoder motors to control the movement of the Gap and Phase. In order to maintain stability during movement, PID control is applied to the motion process by the motion controller. To further enhance precision, the system also employs an integrator limit within the motion controller for additional adjustments. This paper describes the development of the control system and the enhancements made to the insertion device movement process.

### Footnotes

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### Region represented

Asia

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