

Calibration of the analog beam-signal hardware for the credited engineered beam power limit system at the Proton Power Upgrade Project at the Spallation Neutron Source

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A programmable signal processor-based credited safety control that calculates pulsed beam power based on beam kinetic energy and charge was designed as part of the Proton Power Upgrade (PPU) project at the Spallation Neutron Source (SNS). The system must reliably shut off the beam if the average power exceeds 2.145 MW averaging over 60 seconds. System calibration requires pedigree in measurements, calibration setup, and calculations. This paper discusses the calibration of the analog beam signal components up to and including the Analog Digital Convertors (ADCs) for implementation into the Safety Programmable Logic Controllers (PLCs) and Field Programmable Gate Arrays (FPGAs).

Footnotes

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