

# FIBER OPTIC CONTROL FOR ELECTRON GUN POWER SUPPLIES OF 3MEV DC ACCELERATOR

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## Abstract

A 3MeV, 10mA DC Industrial Electron Beam Accelerator is being developed at Electron Beam Centre, Navi Mumbai. The electron beam is generated by a triode electron gun and injected into the accelerating column at 5 keV. The gun and its power supplies, i.e. 5kV anode, 3kV grid and 15V/20A (filament), are floating at 3 Million volts, and are situated in a tank which is pressurized with SF<sub>6</sub> at 6kg/cm<sup>2</sup>. These power supplies are required to be controlled remotely. For this purpose, control system using ADAM modules and Optical fiber has been designed and developed. One set of control modules is situated inside the pressure vessel and is floating at 3MeV. The other set of modules is placed at ground potential at the bottom of the pressure vessel. Communication between the two sets of modules is through optical fiber. The module at ground potential convert's RS-485 signal to optical signal. Software was developed in Visual Basic using CWSerial ActiveX control. The system has been successfully tested on the gun power supplies and for high-pressure operation at 6kg/cm<sup>2</sup>. This paper discusses the design aspects, circuit details and testing of the control system.

**CONTRIBUTION NOT  
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