

Machine Protection System

The Machine Protection System (MPS) is a hardware-based system used to shut off the electron beam in cases where sustained beam, or energy directly related to the electron beam, could damage components. MPS inputs include target motion, beam loss detectors, superconducting cavity arc/Quench...etc. The backbone of the MPS system is the Fast Shutdown system (FSD), which has the ability to shut off the beam from anywhere in the accelerator in less than 40 m s. The actual detection of a fault condition and the interface from the fault logic to the FSD system is the responsibility of the user. The MPS is composed of sensors, interlocks, and warning devices, which are designed to prevent or minimize damage to accelerator equipment. The subsystems of the MPS include:

- Beam Loss Monitors (BLM)
- Beam Current Accounting (BCA)
- Fast Shutdown System (FSD)

and the user interfaces to these subsystems.