LHC Machine Protection Review



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Transverse damper

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The LHC transverse damper forms part of the RF system and will as such be connected to the beam interlock system through common links. The system will be used for injection damping and to provide feedback to stabilize the beams against transverse coupled bunch modes which could develop at the injection plateau and along the ramp. From the capabilities of the system limits are derived for the injection error and instability growth times that the system can handle. Moreover, the damper can be used for machine studies as beam exciter, and also for active abort gap cleaning by transverse excitation and subsequent interception of the beam by the collimation system. These possible uses are described together with their implications for the machine protection system, such as worst case failure scenarios including the expected time scale of beam losses as well as possibilities and limits of protection through interlocks inside the damper system.

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