Requirements for the protection of the SC links components¶

A. Ballarino, ……

Acknowledgements: R. Denz

……..

International Review of the Conceptual Design of the Cold Powering System for the HL-LHC Superconducting Magnets

Outline

- Protection of components: strategy
  - System overview
  - Superconducting Link (dimensioning of cables and amount of stabilizer vs circuits requirements, including transients)
  - Current Leads
  - Experience from LHC
- Interlocks – hardwired and software
  - Voltage thresholds
  - Cryo-interlocks (T sensors)
  - Signals (voltages and temperatures) on components
  - Instrumentation for protection (voltage taps and temperature sensors)
  - Baseline proposal includes minitoring of splices
  - Nb_3Sn wire implementation
- Measurements results
- Validation of protection strategy via testing program

Conclusions

- Strategy for quench protection defined
- Experience from LHC of key importance for definition of protection requirements
- Discussions with quench protection team confirm feasibility of proposed solutions (see next talk of R. Denz)
- Test program of demonstrator and prototypes includes validation of quench protection strategy and hardware