HPS SVT Interlocks

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Design

- Heavy Proton Search (HPS) main detector component is the Silicon Vertex Tracker (SVT)
  - Placed inside a vacuum camber
  - Electronics & Sensors need to be protected from damage
  - Control power supplies and chillers

PLC Modules

- Allen-Bradley CompactLogix Chassis
  - TTL Output
    - MPOD Control
  - Relay
    - Chiller Control
  - 24VDC Input
    - Beam Status
  - Analog Input
    - Vacuum
  - RTD
    - Temperature
  - Counter
    - Flow Meter

Fault Handling

- Major Fault in PLC
  - MPOD disabled

- Temperature, coolant flow, beam status
  - MPOD channels shutdown

- Loss of vacuum
  - MPOD & Chillers shutdown

- All devices can be controlled manually

Status

- All PLC hardware in hand at JLAB
- Software completed
  - Only tested with "fake" signals, e.g. benchtop supply to mimic analog sensors, waveform generator for flow meters, etc.

- TODO
  - Expand documentation
  - Test with actual sensors/hardware
  - Integrate with EPICS