

Dimitri Tischhauser - MTCA.4 based Cavity and Coupler Interlock at the European XFEL

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The safe operation of cavities and couplers in the European XFEL accelerator environment is secured by a new technical interlock (TIL) design, which is based on the XFEL crate standard (MTCA™.4). The new interlock is located inside the accelerator tunnel. Several remote test capabilities ensure the correct operation of sensors for light, temperature and free electrons. Due to the space costs and the very high number of channels, the electronic concept was moved from a conservative, mostly analog electronic approach, with real comparators and thresholds, to a concept, where the digitizing of the signals is done at a very early stage. Filters, thresholds and comparators are moved into the digital part. The usage of an FPGA and an additional watchdog increase the flexibility dramatically, with respect to be as reliable as possible. An overview of the system is shown.

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