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Data acquisition and supervision for the HL-LHC quench protection system –Part II the software stack

Thursday, 11 May 2023 16:30 (2 hours)

The Quench Protection System (QPS) of the LHC is crucial for integrity of the superconducting circuit elements. It also plays an important role in the acquisition of data from the circuit elements during the magnet qualification, equipment commissioning and accelerator operation. The new superconducting circuits for the HL-LHC era, which will be assembled and operated for a first time in the IT String facility, require finer and more comprehensive measurements during all of these steps. The required data throughput cannot be achieved with the current QPS data acquisition technology. Therefore, a new data acquisition stack called EDAQ has been developed to address this issue and provide further improvements, including accurate timing synchronisation down to the individual field agents. This contribution presents the technologies chosen for this new stack, their additional benefits, their assembly into a robust and high-performance prototype, its integration into the existing controls environment and the ongoing validation in successive steps towards the HL-LHC installation.

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Footnotes

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Yes

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