

12th Beam Telescopes and Test Beams Workshop



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CLICdp Timepix3 Telescope: Improvements and Monitoring

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This contribution reports on recent upgrades made to the CLICdp Timepix3 beam telescope installed in the H6 beam line of the CERN SPS test-beam facility. The focus is given to mechanical improvements and the establishment of an environmental monitoring system. Data from recent test-beam campaigns are used to demonstrate the achieved improvements both in data quality and with the operation of the setup.

The performed mechanical enhancements result in better control over the alignment of its planes and scintillators. To achieve better time resolution, microchannel plate photomultiplier tubes (MCP-PMTs) are being commissioned as part of the ongoing upgrades. All improvements are verified using reconstructed particle beams and using the Corryvreckan analysis framework.

An environment and data monitoring system based on Grafana and Raspberry Pis has also been established and tested. This system is designed to track conditions like data rates, temperature, and humidity, which can impact the telescope performance. Importantly, the design of this monitoring system allows for simple expansion to other parts of the infrastructure, such as High Voltage (HV) crates, demonstrating its versatility.

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