

Libera Brilliance X: MTCA.4 Readout Electronics for Electron Synchrotrons.

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Within the PETRA IV project at DESY, a new high-resolution Beam Position Monitor (BPM) system based on MTCA.4 technology is being developed to meet the stringent requirements of the low-emittance lattice. Building on the successful prototype phase, the system has now been introduced under the commercial name Libera Brilliance X, a new member of Instrumentation Technologies' Libera family. The name emphasizes continuity with the widely adopted Libera Brilliance+, while extending the concept into the modular MTCA.4 platform.

The Libera Brilliance X system relies on two key application modules developed for the PETRA IV project: the DAMC-UNIZUP AMC card, designed at DESY and licensed by Instrumentation Technologies, and the Libera 2BPMRTM front-end and digitizer, developed at Instrumentation Technologies. Leveraging the modularity of the platform, these boards can be integrated into various chassis, including compact form factors suitable for laboratory and test-bench applications.

In this contribution, we present the current development status and the first test results obtained with the instrument in the laboratory and at Brookhaven National Laboratory on the NSLS-II machine.

Author: PAGLOVEC, Peter (Instrumentation Technologies)

Presenter: PAGLOVEC, Peter (Instrumentation Technologies)

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