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## Development of the data acquisition system electronics for the project of wide-aperture backscattering detector for the HRFD diffractometer at the IBR-2 reactor

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In the framework of the project for “Development of Experimental Facilities for Condensed Matter Investigations with Beams of the IBR-2 Facility» a wide-aperture backscattering detector for the HRFD diffractometer is being developed in FLNP.

Creation and operation of the new detector will result in a significant increase in the recorded data flow, which, in turn, requires further development of the data acquisition system.

Today, DAQ systems consisting of two types of blocks are being used to collect and accumulate data from an array of point detectors operating on IBR-2 spectrometers: one digital, capable of recording and accumulating data from 1 to 240 point detector elements, and several 32-channel analog blocks that receive, discriminate, convert, and transmit signals from the detector preamps to the MPD-240 digital unit. For communication with the computer the fiber optic transceiver of the unit together with the USB2.0 interface are used.

The new DAQ architecture based on the upgraded MPD-32 units that include 32-channel discriminators with a digital coding part, high-speed interconnection interfaces, and the computer interface USB3.0 is suggested. The developed system will allow a 50 times increase of the bandwidth of the data acquisition system and will satisfy the new requirements.

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