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The Monitoring System of the Belle-II Vertex Detector

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The Belle-II VerteX Detector (VXD) is a 6 layers silicon tracker device that will cope with an unprecedented luminosity of 8 × 10ˆ35 cm−2s−1 achievable by the new SuperKEKB e+e− collider, now under commissioning at the KEK laboratory (Tsukuba, Japan).
All environment parameters such as temperature, humidity and radiation levels, must be constanly monitored and under certain conditions action must be promptly taken, such us interlocking the power supply or deliver an abort signal to the SuperKEKB collider.

The VXD electronics is cooled with a complex biphase CO2 system at -30° and constantly fluxed with N2 to keep the humidity as low as possible.
The temperature system is based on two different sensors, NTC thermistors and FOS (Fiber Optical Sensors) with partial overlap.
The humidity is monitored by sniffing system and precise dew-point sensors.

A radiation monitoring and beam abort system has been developed based on single-crystal diamond sensors.
The sensors will be placed in 20 key positions in the vicinity of the interaction region.
The severe space limitations require a remote readout of the sensors.
The system design will be described, along with the sensor characterization procedure and the prototype of the readout electronics.

In this contribution we present the first results of the temperature and humidity system commissioned in a Beam Test at DESY in April 2016 and the preliminary results of the radiation monitoring achieved with a prototype system during the first SuperKEKB commissiong phase in February-June 2016.

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