

# ONLINE PHOTON BEAM POSITION AND INTENSITY MONITORING AT FLASH

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## Abstract

The new soft X-ray free-electron-laser FLASH at DESY started user operation mid 2005. Due to the intrinsic fluctuations of the SASE radiation the vast majority of the user experiments need pulse-resolved online information about the intensity. At FLASH, a gas-monitor detector (GMD) is in routine operation, measuring the photon flux and beam position of the pulsed radiation in absolute terms. The detector is based on the atomic photoionization of a rare gas or nitrogen at low particle density in the range of  $1 \cdot 10^{11} \text{ cm}^{-3}$  which is about five orders lower than for classical ionization chambers. The GMD covers the intensity range from spontaneous emission to SASE at saturation. The performance of the device and the readout electronics has been investigated thoroughly for various operation modes of the machine. In this paper, we report on the reliability and resolution of the GMD and its multiple subsystems. A software interface for the operation and data acquisition of the detector is described.

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