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Beam position interlock for Elettra 2.0 storage ring

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Currently we are in the final design phase of Elettra 2.0. The new machine will have a maximum current of 400 mA, an energy of 2.4 GeV and an emittance of 212 pm-rad. In order to protect the components inside the vacuum chamber and the chamber itself, a beam position interlock is mandatory. In this report we will present the existing interlock system of the current machine, explaining its mode of operation and specifying why a more complex interlock system is required for the new storage ring. In fact, the adopted lattice imposes strict rules on machine operation that can vary, depending on type and position of the insertion devices. For this reason, we propose a new beam orbit interlock based on our new pilot tone based eBPM system. Hoping then to start a useful discussion about interlocks and safe operation of storage rings with the participants, thanks to their experience in the lightsources field.

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