

## A new generation of arc detectors for the LHC and Linac4 high power RF system

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During operation, the LHC high power RF equipment has to be protected from damage caused by electromagnetic discharges (arcs). The LHC waveguide arc detector system is based on the optical detection of the discharge through small apertures in the waveguide walls, optical fibres and very sensitive photo detectors. Experience shows that some of the currently used optical fibres suffer from x-ray induced opacity. The sensors are also exposed to the radiation produced by secondary showers coming from the high intensity beams which, if not treated properly, can cause frequent spurious trips.

Therefore a new generation of arc detectors with number of improvements has been developed. New fiberless design, based on measurements with optical parameters from real arcs with redundant detectors for critical environments will be presented.

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