

# Operation of CMS GE1/1 GEM detectors in Run-3

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The muon system of the CMS experiment at the LHC has been upgraded by the installation of the first station of Gas Electron Multiplier (GEM), GE1/1, over the Long Shutdown 2 (LS2). The High-Luminosity phase of the LHC (HL-LHC) upgrade for CMS incorporates two additional stations, GE2/1 and ME0. Three GE2/1 chambers have been installed in CMS, with two new ones added at the beginning of 2024, while ME0 is slated for installation during LS3. The aim is to enhance the muon system's capabilities for HL-LHC by extending its acceptance up to  $|\eta|=2.8$  and improving the muon triggering while maintaining performance achieved during Run 2. We present operational aspects of GEM detectors during Run 3, covering detector stability, performance metrics such as muon detection efficiency, and occasional high occupancy events. Finally, we report on the effects of magnetic field variations observed during commissioning and address the correlation between GEM baseline currents and LHC beam luminosity.

## Alternate track

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Yes

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