



GEM gas system

- GEM gas system status :
- GEM gas system mode :
 - Ar/CO₂ mode with the ratio 70/30% is normally used during operations and necessary for commissioning. The standard total flow reaches 660 L/h for the full system (as of today with GE11 and GE21 distribution racks).
 - Pure CO₂ (100%) from the mixer is used during the EYTS by default. It was used during the YETS 25/26 and is also used for HV training.
 - If none of the above options is available, then *the request is to run on the backup mode (pure CO₂ also)*.
- GEM requests :
 - **USC monitoring** : there is a monitoring at the global output of the GEM gas system. There is also a global check of the gas gain at the entrance of the system in SGX (gas gain monitoring chamber)
 - Can we have regular O₂/H₂O monitoring at the output of both endcaps ?
 - If possible, also GC (gas chromatograph) analysis at the output ?
 - Communication prior to any intervention with GEM contact/on call : we re-enforce our request to have a green-light before any intervention



GEM gas system @904

- Should the gas system in 904 shall remain operational during the full LS3 period? **YES**
- GEM gas mixture used at 904 for standard operations with cosmic stand : **Ar/CO2 in the ratio 70/30**
- Expected average flow (L/h) during LS3 : **~60 L/h of Ar/CO2 gas mixture (~40 L/h of Ar and ~20 L/h of CO2)**
- Temporary backup solution in case of interruption of the gas system : **Pure CO2 gas is still ok (but not for any commissioning activity)**
- We also need pure CO2 gas for specific usage (HV tests) : **20 L/h**
- Other gas mixture needed : **N2 is necessary** to maintain dry the ME0 stack in the storage area (up to Feb/Mar 2027, upper limit 100 L/h) and also for the clean room (max. 60 L/h)
- Expected upper limit of the flow of N2 gas mixture : **100 L/h of N2**
- **Summary of GEM needs in 904 for LS3 :**
 - **Ar 40 L/h**
 - **CO2 40 L/h**
 - **N2 160 L/h**