# DC status update

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## DC05YY' status

Short preventing HV discovered on January 2021



- Diagnosed to broken wire in region y07 and y08  $\rightarrow$  Short to ground visible to BK, CY and CYY', and FW Y
- Further test to evaluate the possibility to work with partial RO:
  - Only 1 broken wire identified at the middle of the chamber: wire# 128
  - Check isolation resistance of sense wire

(to operate with HV and floating sense wires)

- $\rightarrow$  Several sense wires connected to ground through  $\sim$  10  $k\Omega$
- $\rightarrow$  Default of isolation getting worse with time

 $\rightarrow$  Cannot operate even with floating sense wires, Y and Y' unavailable

Repair plans: See Caroline's talk



TB Jul. 2021

## DC05 noise study



- High noise: Threshold  $\gtrsim$  40 fC necessary to keep rate  $\leq$  30 kHz (top)
- Difficult to diagnose as the baselines moves also with noise level
- Understanding of grounding scheme under study:
  - Digital

• Power

Analog

- Shielding
- Observation of fluctuating 60mV between FEM ground and Chamber ground

 $\rightarrow$  Improved grounding of FEM digital part through RJ45 cage (bottom)

- Rack cooling: Broken fan replaced
- Water cooling: Ok
- HV migration to CAEN:
  - Implementation in DCS: Thanks to Christophe
  - ISEG-CAEN mapping checked
  - Hardware disable: open safety loop: fixed now
  - ightarrow Operational
- $\bullet~$  LV ok and no errors on MurphyTV so far
- Noise: Threshold scan to be scheduled this week

Basically ready and no problem to report so far



#### DC04 status

• Sudden raised of current in FW and Cathode:  $10\mu A \rightarrow 3$ min before it trips

Note: HV mapping mistake, X and Y are swapped

- Not possible to raise the HV
- Measurement with Shuddha:
  - $1\Omega$  to ground for Y' cathode and YY' cathode
  - Beyond accuracy of the device for BKs
  - Beyond accuracy of the device for FWs !?



Next: Localise the potential broken wire (most likely on top) Isolate the region and check whether HV cannot be operated with partial RO

#### DC00 status

- HV mapping to be checked?
- $\bullet~$  Current growing on DC00V since 11/07/2021
- Reaching trip limit yesterday
- From CAEN, the leak current correspond to  $\sim 10~M\Omega$  Dust in the chamber? Can it be burned? To be investigated by detector expert



side comment: Connected trip between channels understood, comes from hardware settings set up in clean area for HV tests of DC04)

- (PMM: all fine but one "problematic" CAEN channel for drift 3X to be supplied from another channel)
- DC00: All planes working (HV, LV, RO) fine but DC00VV' to be clarified
- DC01: All planes working (HV, LV, RO)
- DC04: Broken wire on Y', investigation for partial RO and all planes
- DC05: All planes working (HV, LV, RO) but YY' which cannot be operated
- ST03: All planes working (HV, LV, RO)

# BACKUP









