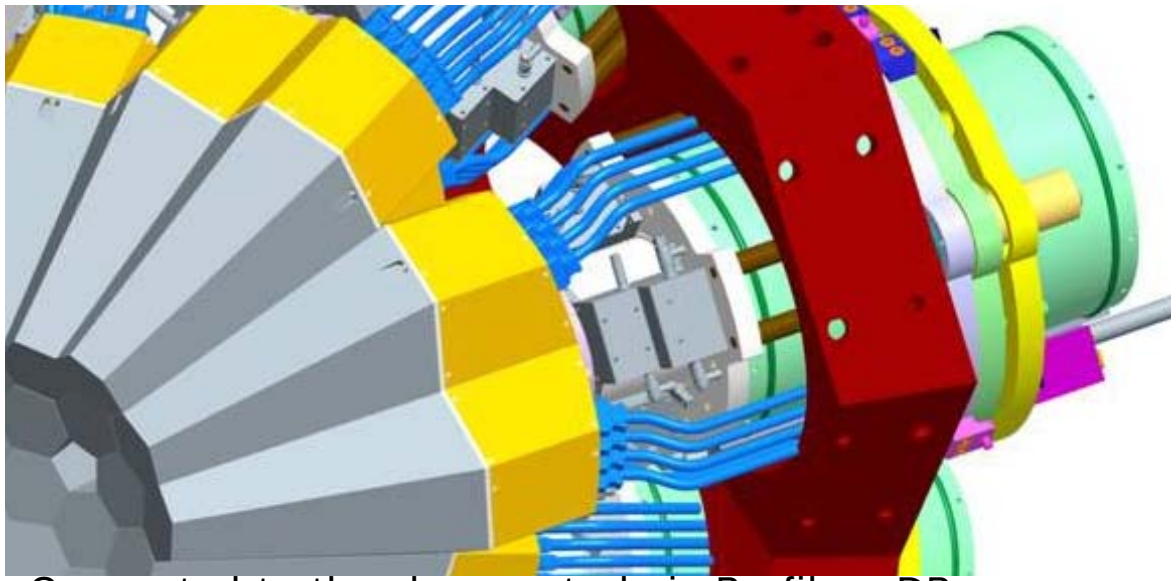
Team Meeting : Infrastructure
HV Filter

- Current Status – Pete Jones (Jyväskylä)
- HV Filter for AGATA – Tobias Engert (GSI)
- Discussion

As defined in «DSS performance specifications » V.E at:
https://project-agata.cea.fr/Groups/infrastructure/

Summary of the main functionalities (1/2)

- Mounted on the cryostat



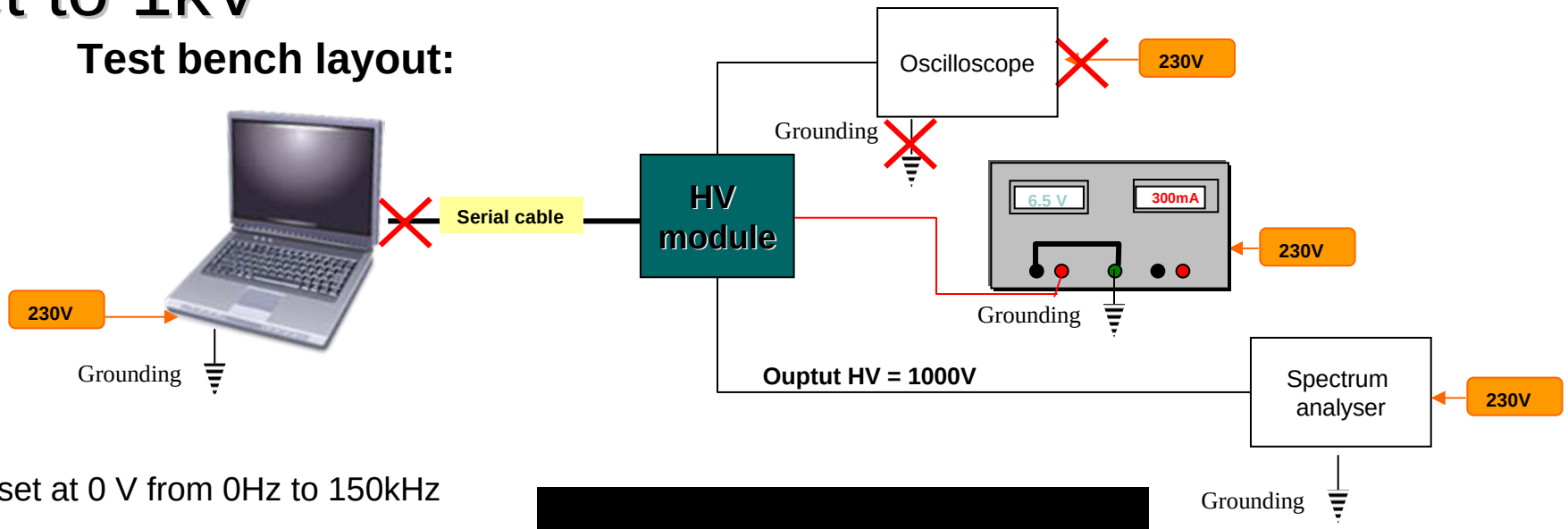
- Connected to the slow control via Profibus-DP
- Connection to the ISEG HV module are:
  - Vset (0 – 2.5V corresp. 0 – 5kV)
  - Imon (current monitoring) (0 – 2.5V corresp. 0 – 10µA)
  - Vmon (output voltage monitoring) (0 – 2.5V corresp. 0 – 5kV)
- The HV module has embedded HVmax, Imax, Tmax, RampUpmax, RampDownmax, ID number.

Difficulties to reach the specs due to ISEG module

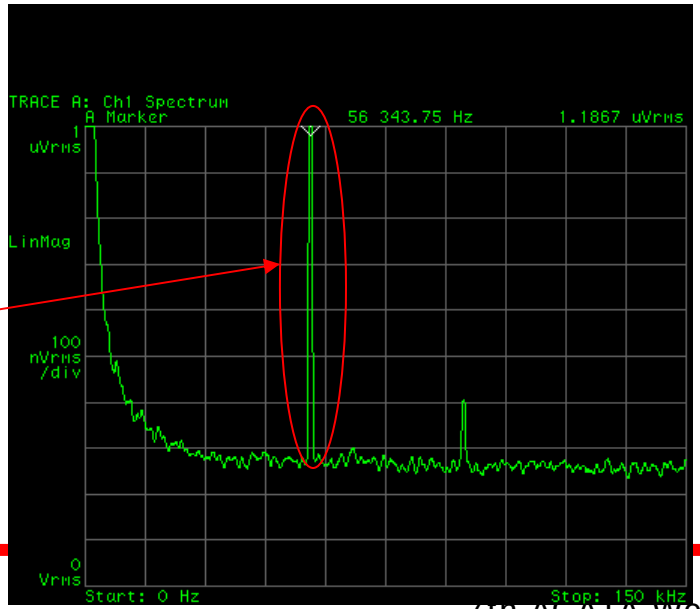
- Difficulties to obtain technical informations from ISEG…
- But we think the MHp 50 103 5 2.5 has the following problems:
  - Accuracy on current measurement not at the level of few nA
  - HV output not inhibited at start and stop
  - Noise at 56.34kHz (chopping frequency)
  - Short circuit protection not present

Measurement on voltage noise density: HV is set to 1kV

Test bench layout:

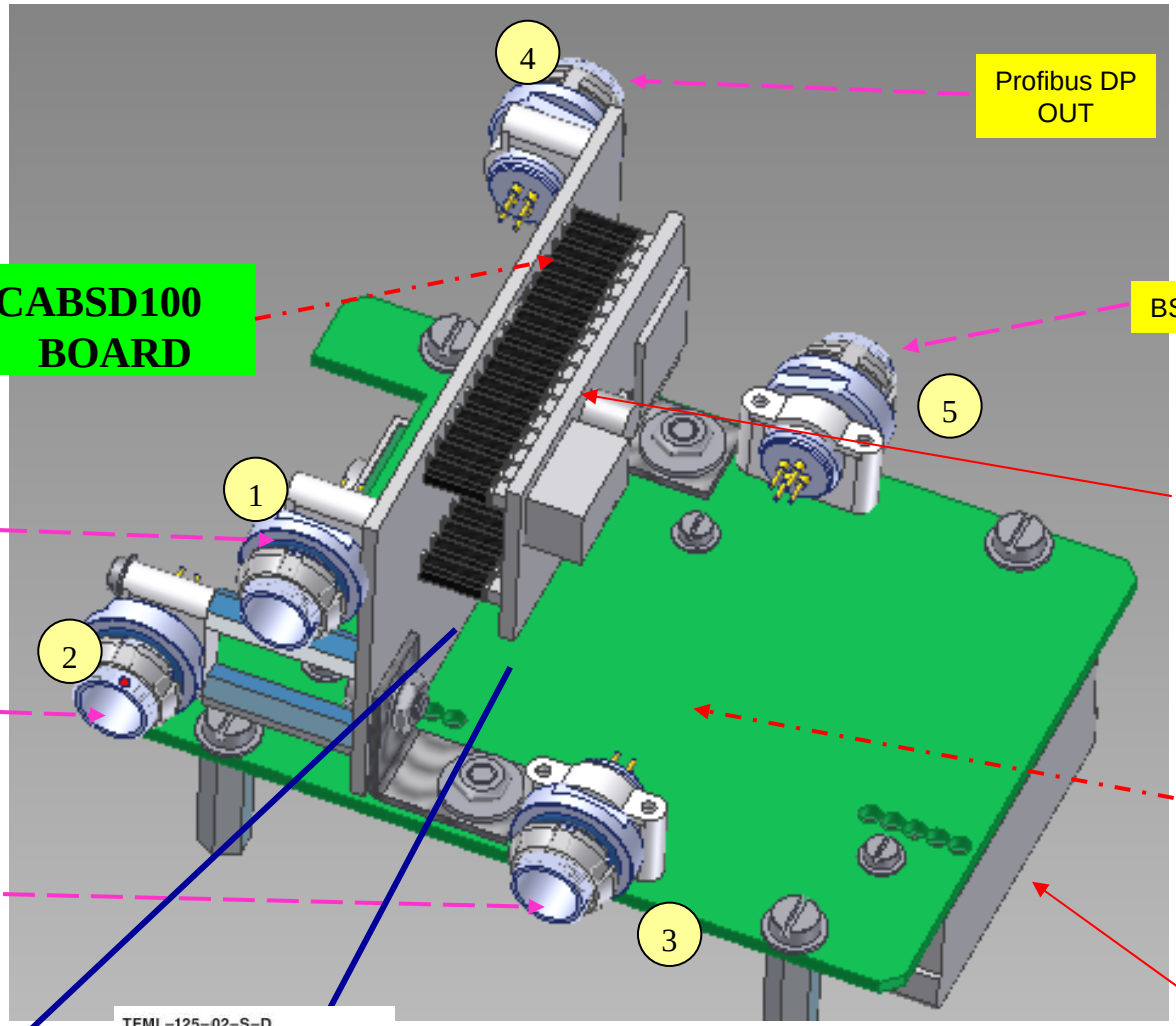


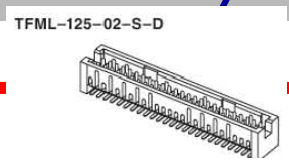
➲ Vset at 0 V from 0Hz to 150kHz



$F_{chopping}$ (ISEG)= 56,34kHz

Hardware: prototype boards n°2





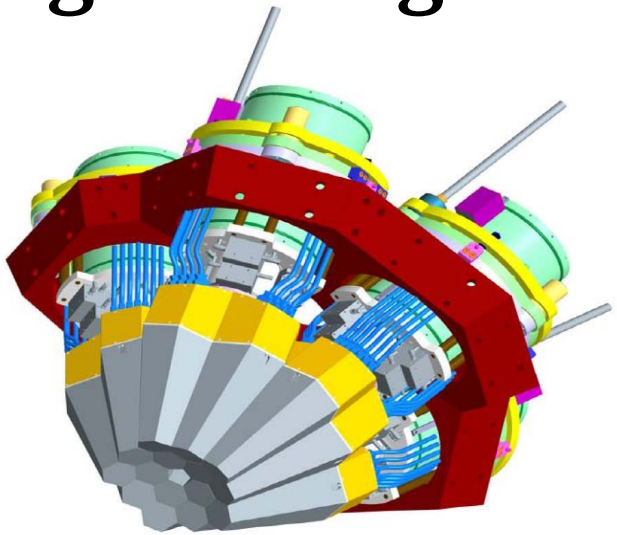
What's next?

- Performances to be checked by GSI
- Different options:
  - Everybody agrees with the ISEG module as it is
  - The HV module should be defined again:
    - Temporary solution for the first months of the demonstrator (with a CAEN crate for instance)
  - The temporary solution becomes the final one.

Difficulties to estimate schedule and costs

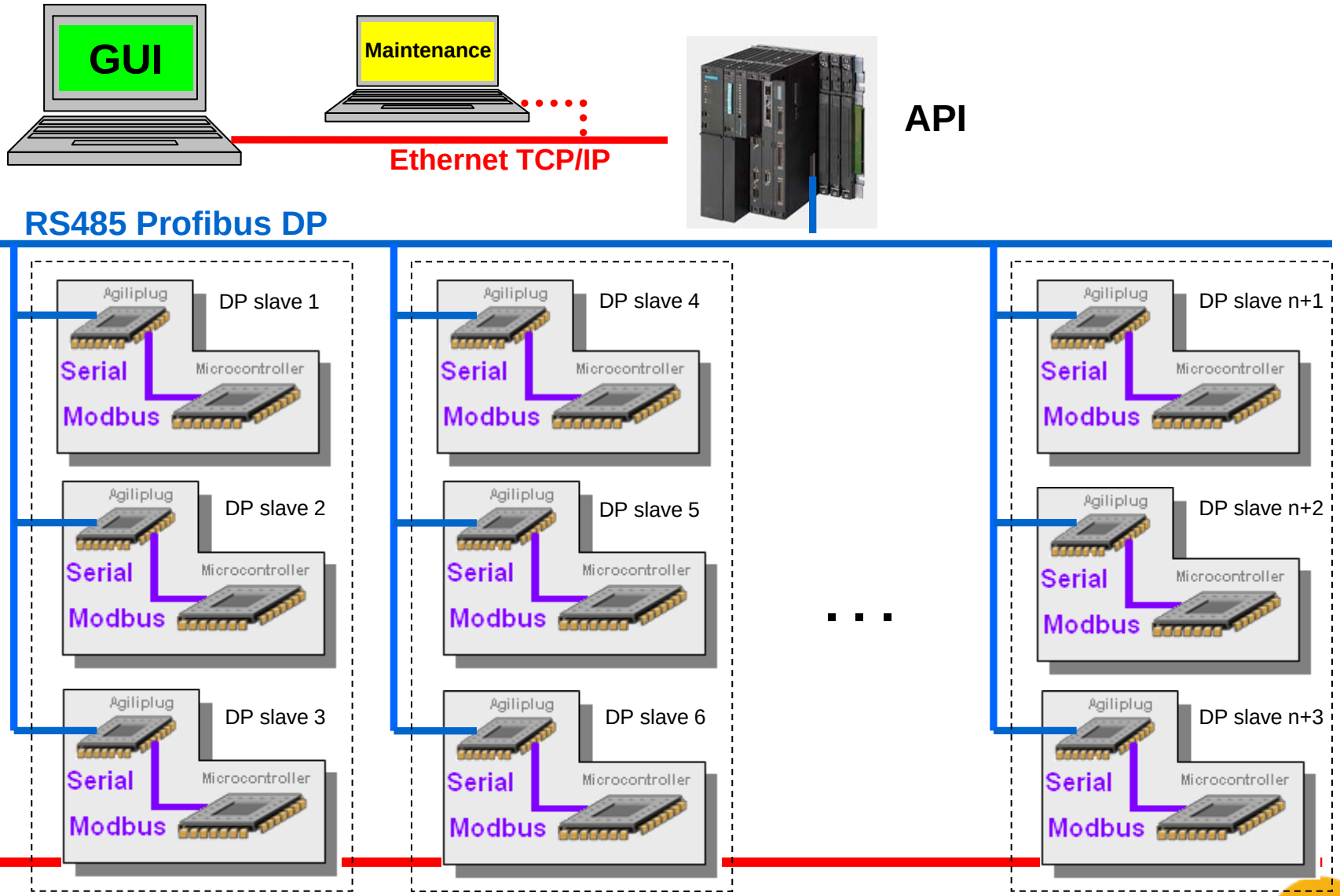
AGATA Demonstrator

Specification of Embedded Software for High Voltage Module



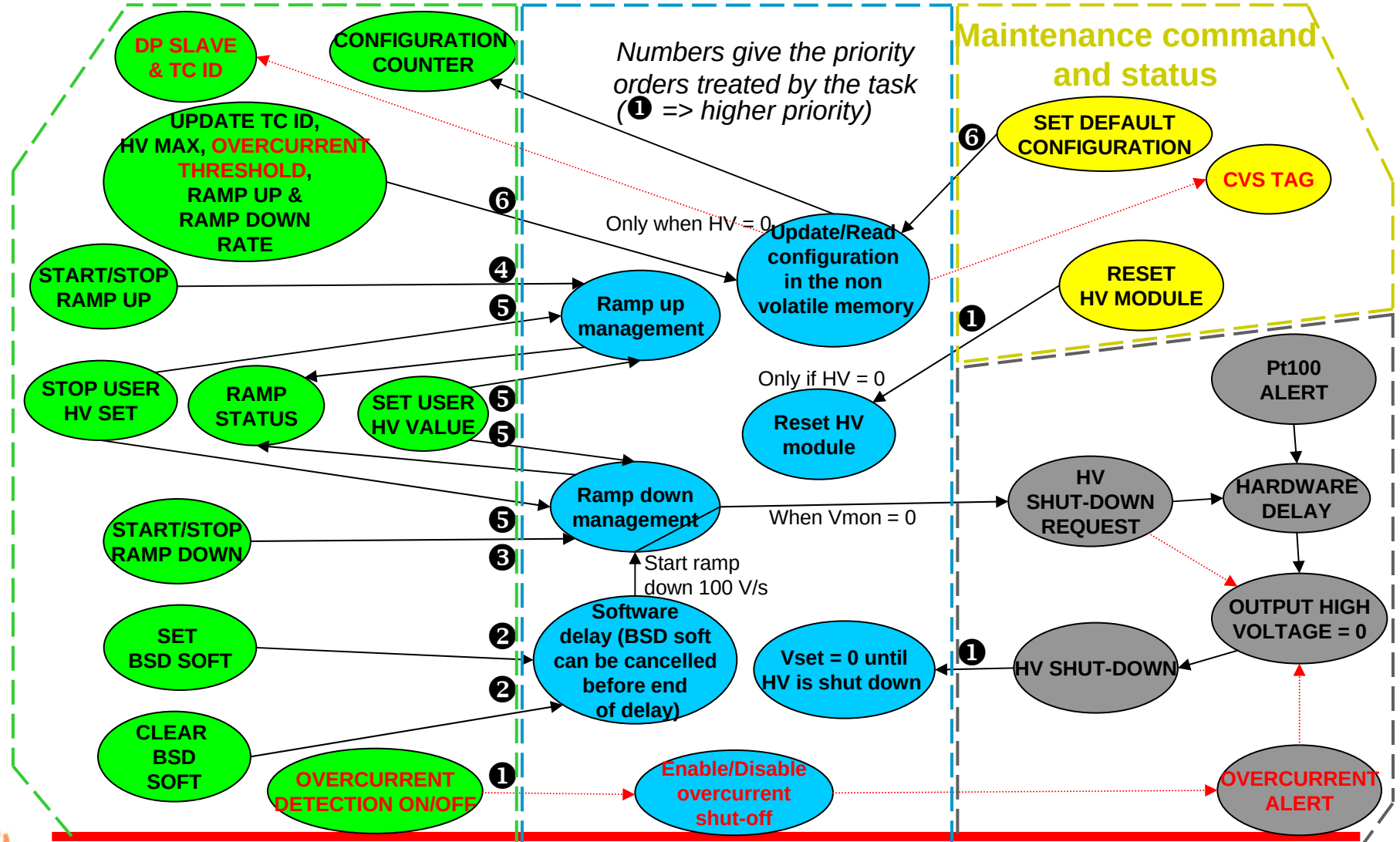
Pete Jones
University of Jyväskylä

Communication architecture



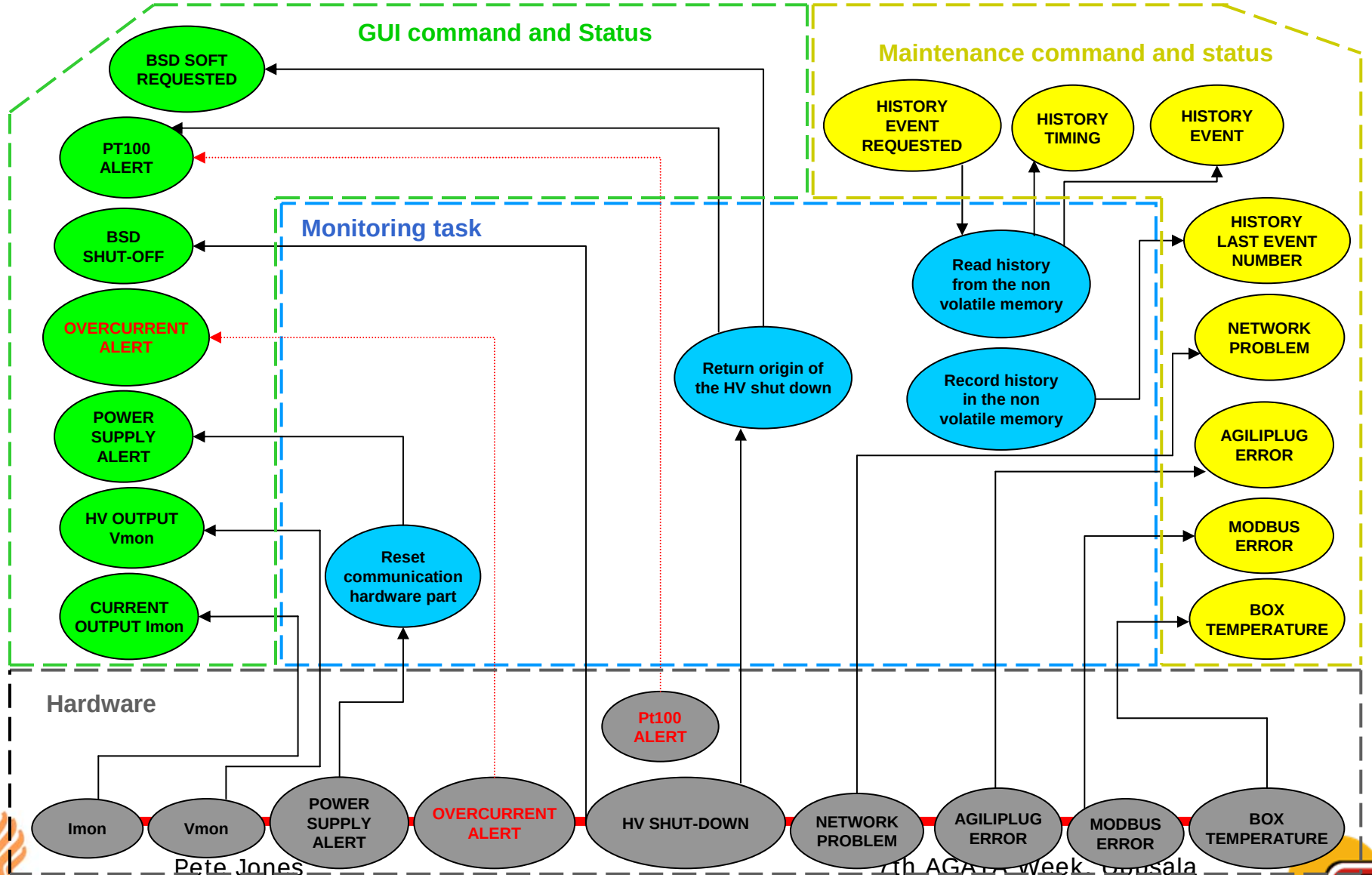
Setup task chart

Legend: in red ☛ Not yet implemented, forecast for next HV MODULE

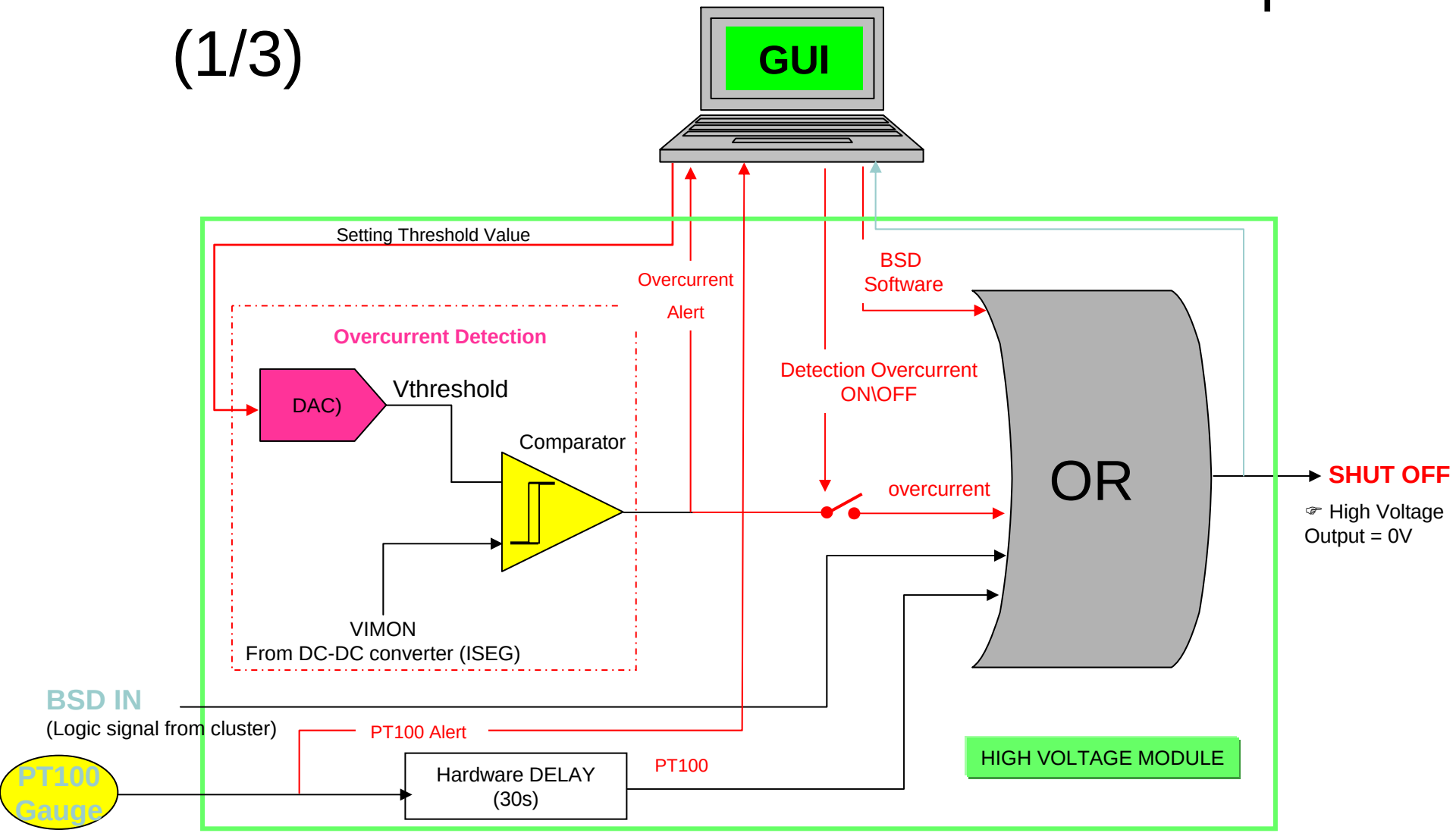


Monitoring task chart

Legend: in red ☞ Not yet implemented, forecast for next HV MODULE



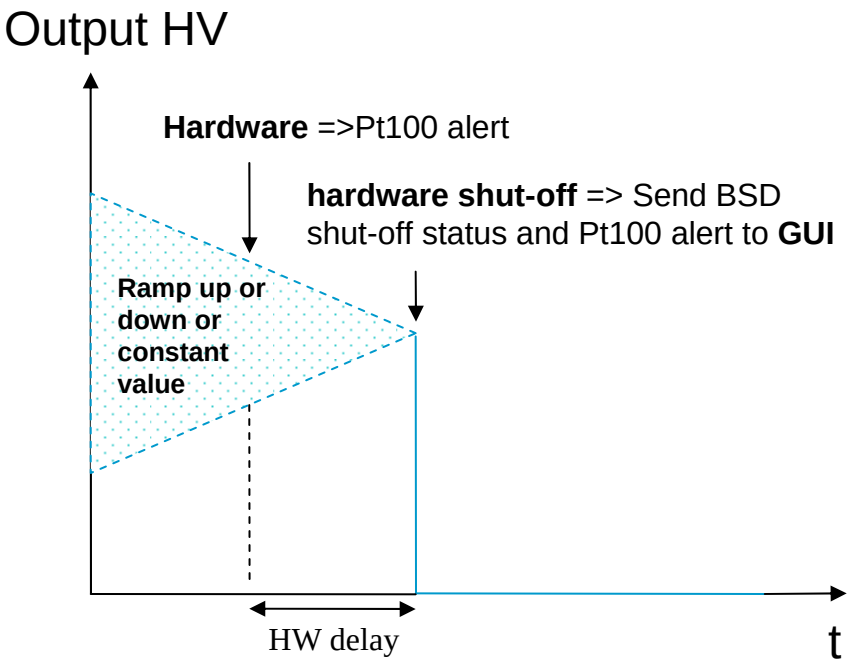
BSD and Overcurrent Detection Principles (1/3)



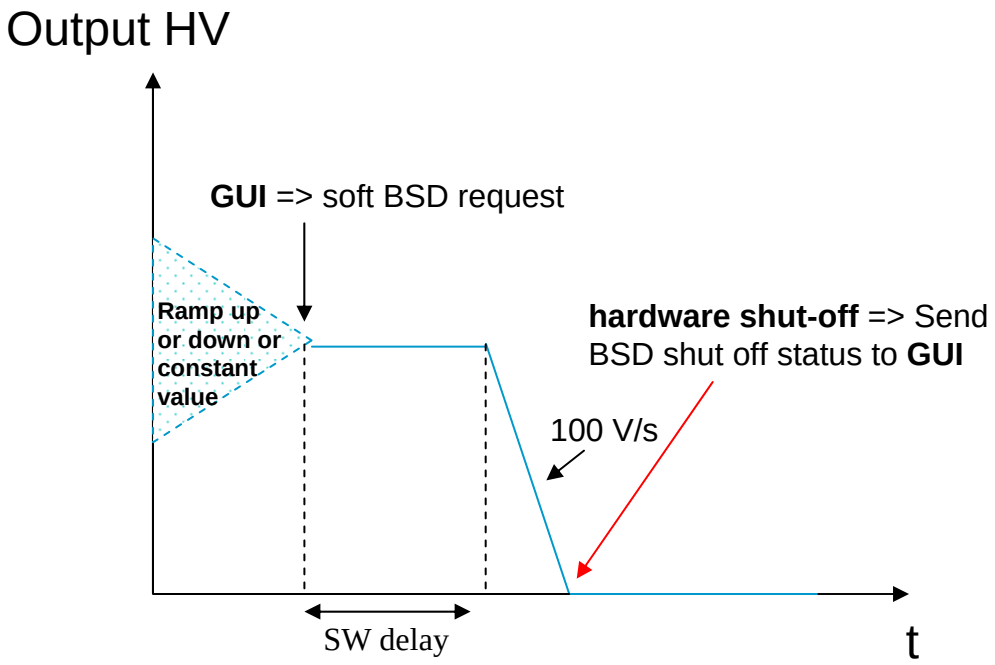
Legend: in red ☞ Not yet implemented, forecast for next HV MODULE

BSD SHUT OFF OVERVIEW (2/3)

PT100 alert



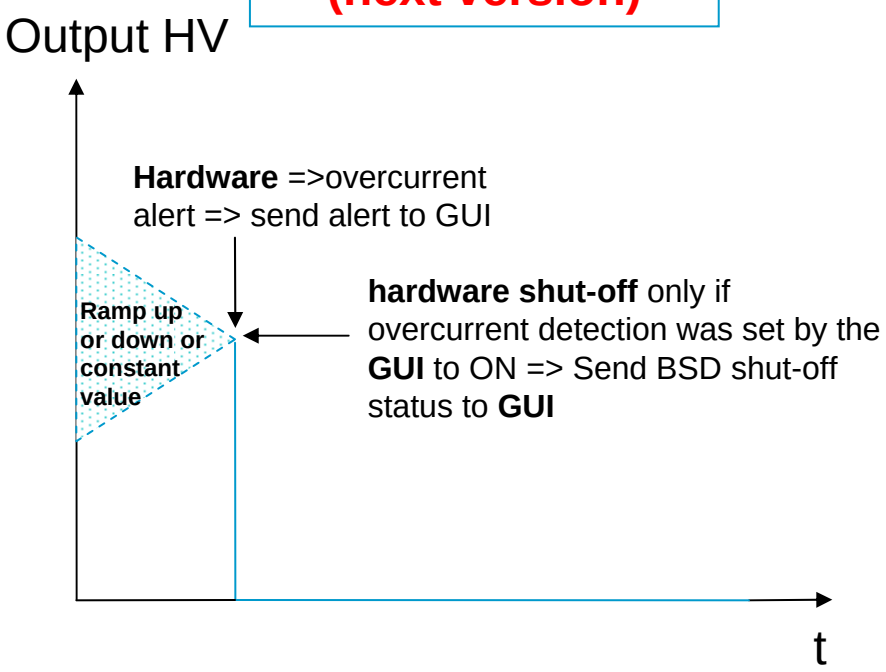
Set BSD software



Overcurrent Detection OVERVIEW (3/3)

Overcurrent alert

(next version)



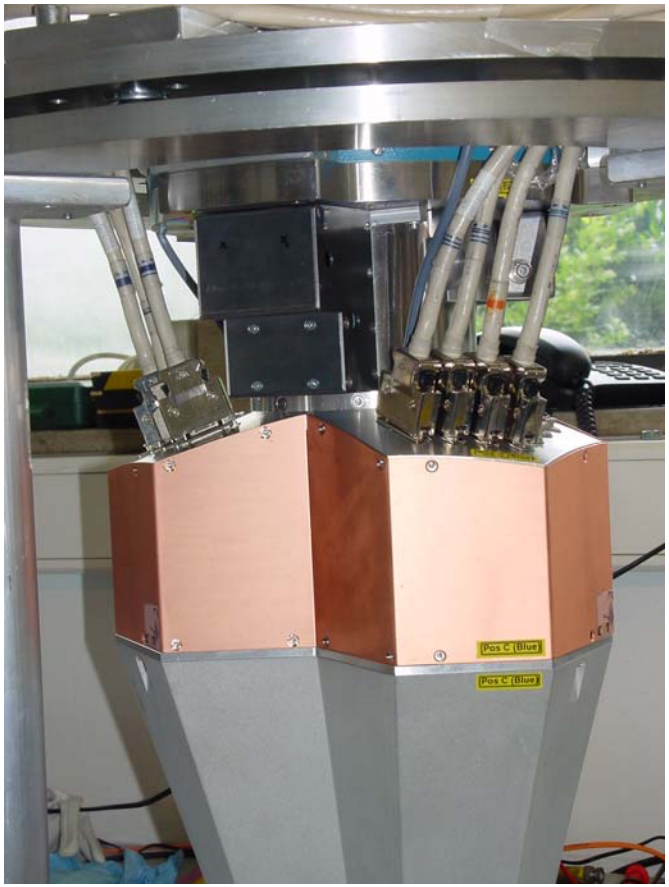
Constant values :

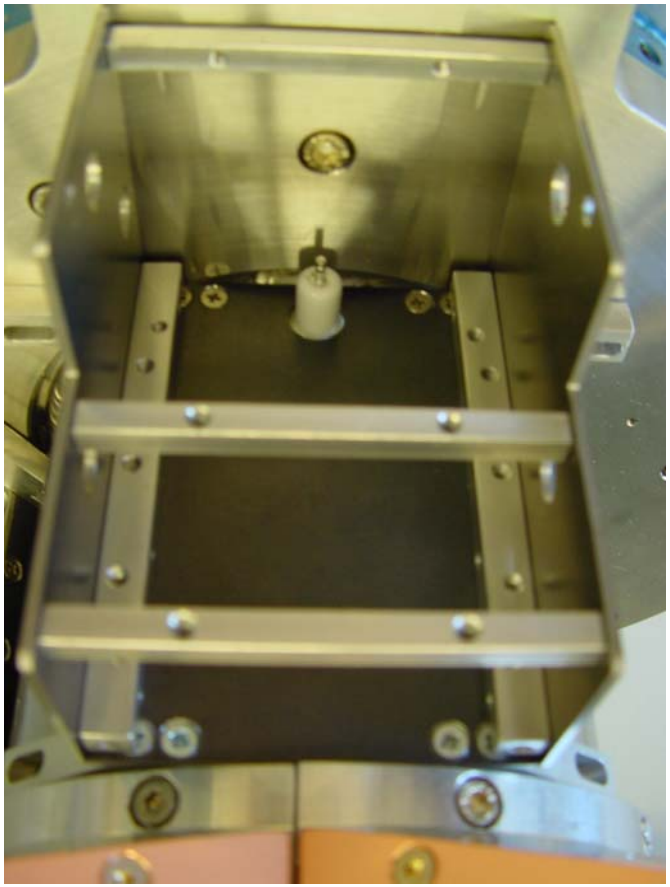
Hardware delay = 10 s (30s in next prototype)

Software delay = 10 s

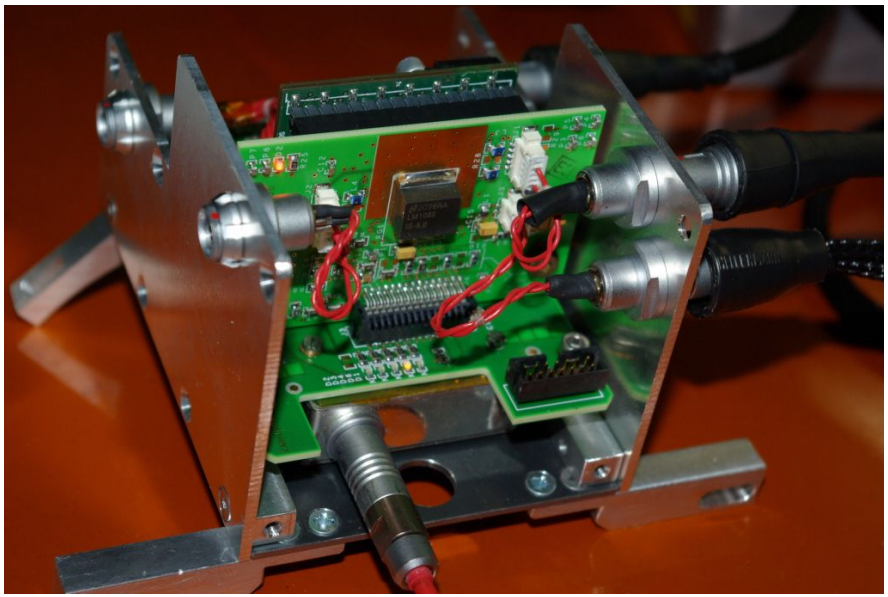
Legend: in red or NOT yet implemented, forecast for next HV MODULE

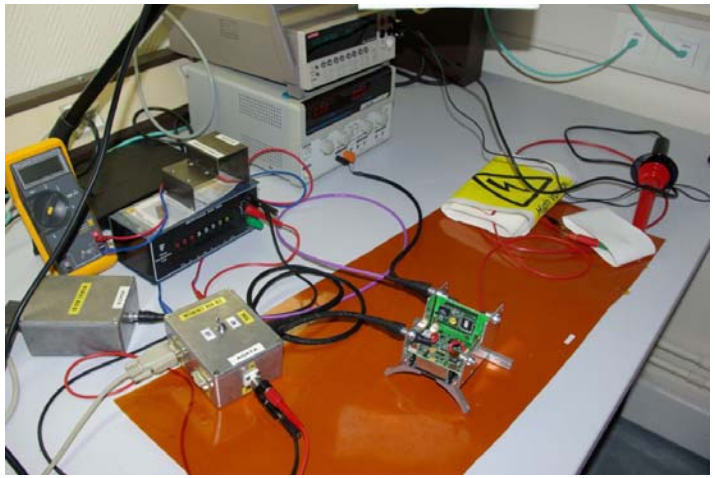
HV Box : GSI & Saclay at Cologne on ATC





HV Box at Saclay (Proto #2) – Andre Bouty





Yesterday, Tommorow, Production, ATC

- HV module functional tests at Saclay
- Next steps: Tests with Detector – What, Where, Filter ?
- Production in line with ATCs
- HV at Legnaro : CAEN HV (STC / ATC)