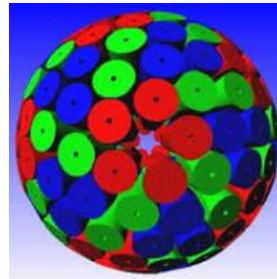


PROPOSED AGATA INFRASTRUCTURE DEVELOPMENTS:

NEW AUTOFILL and NEW LVPS



AGATA infrastructure team at CEA Saclay:

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C.THEISEN, M. ZIELIŃSKA

Not possible to keep the current Autofill architecture for **AGATA 2π and beyond**

- number of buffer tanks needed (one for 8 ATCs)
- major adaptations needed for each host lab

Need to introduce important modifications (different thresholds for PT100, LN2 level, monitoring of LN2 consumption per ATC...)

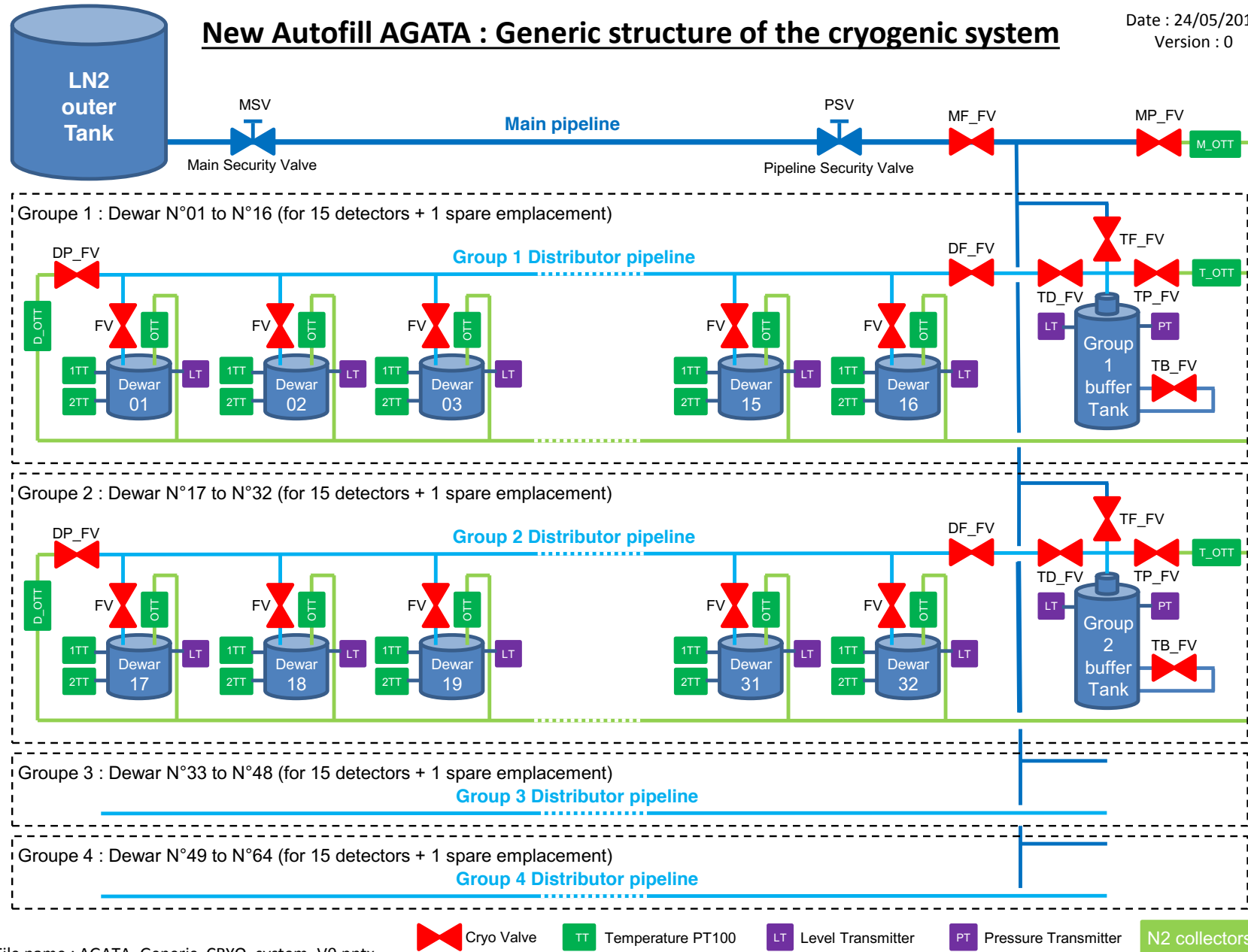
Recent request from AMB to have a system that can be easily split in two for beyond AGATA 2π

First proposal from Saclay: 2013

WG Infrastructure meeting in Saclay on April 4, 2018 → decision taken to prepare a detailed proposal to be presented at AGATA Week

New Autofill AGATA : Generic structure of the cryogenic system

Date : 24/05/2018
Version : 0



One buffer tank for 15 ATCs;
for more than 30 ATCs, these buffer tanks
will be used only for emergency fill (except for GSI)

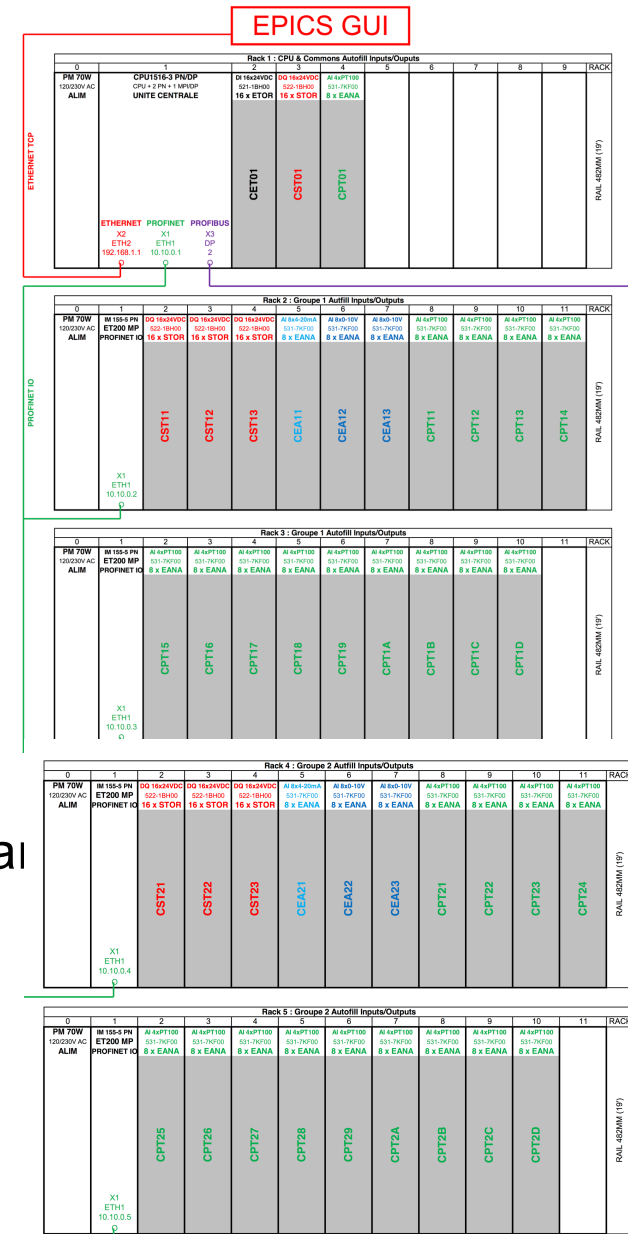
EPICS is to replace MUSCADE (no longer maintained)

1 rack (2.2m high) for 30 detectors



Estimated time needed:

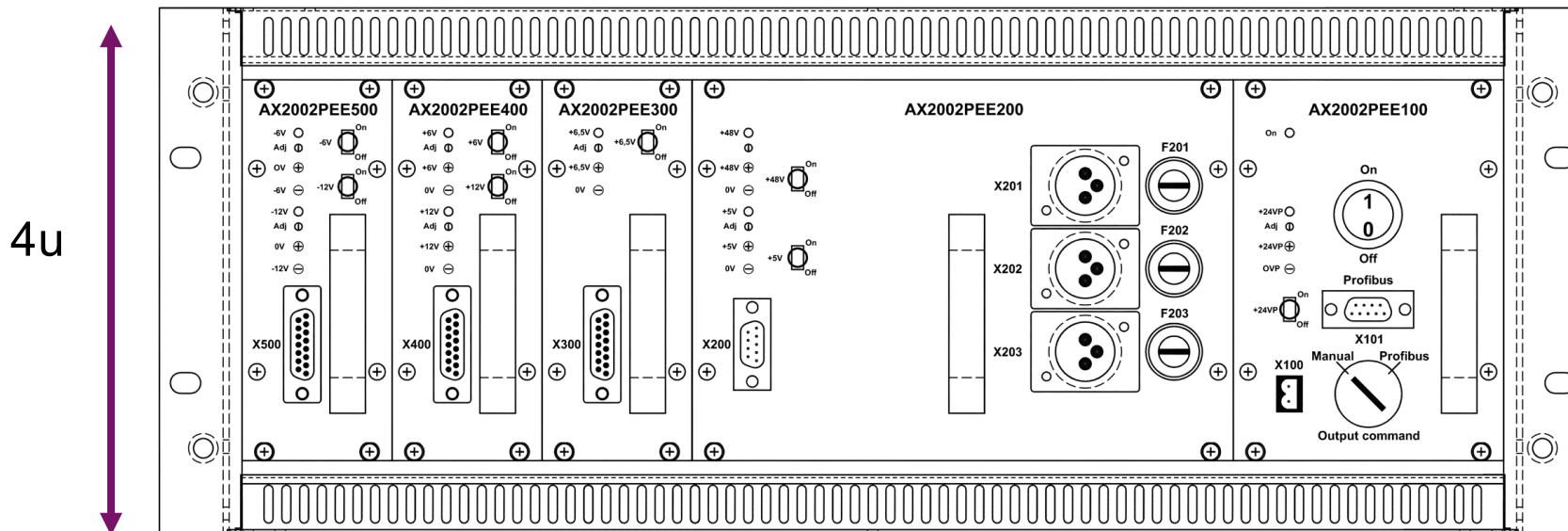
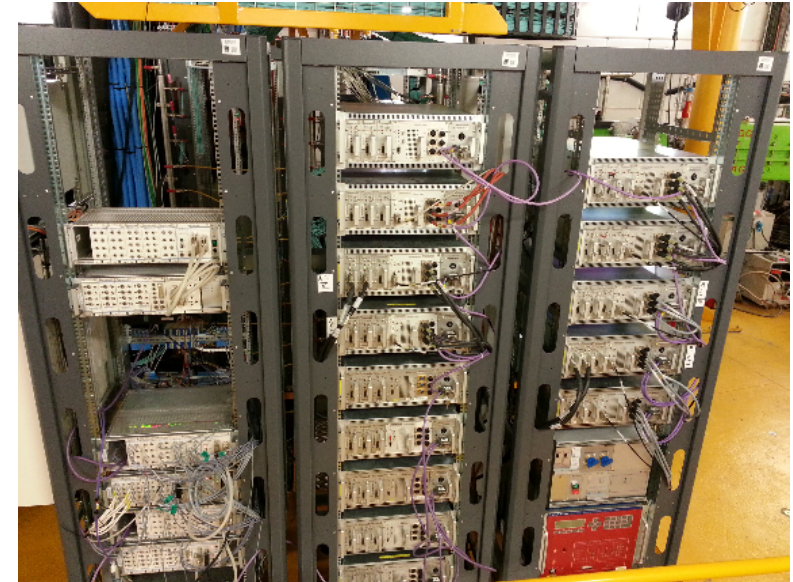
- development of software and networks = 1.5 man-year
- electrotechnical concept = 3 months
- production monitoring for wiring cabinet + tests = 2 months



Present LVPS:

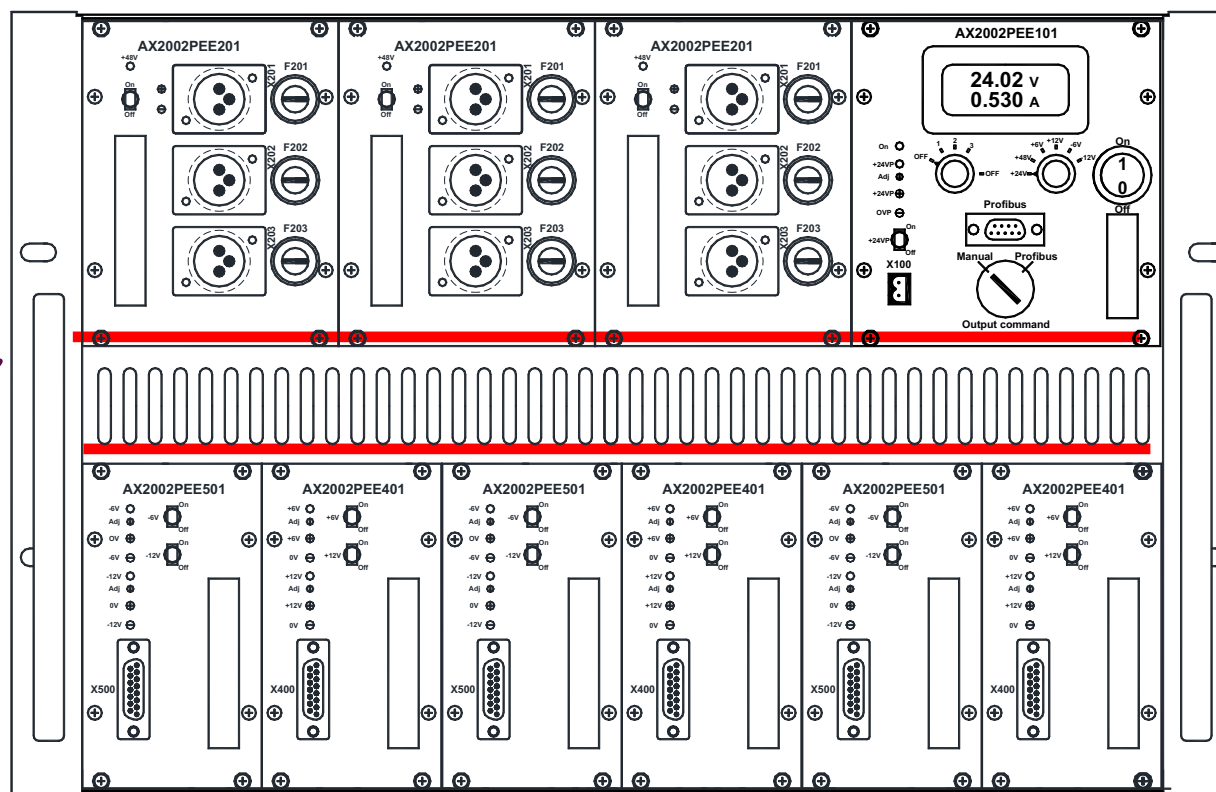
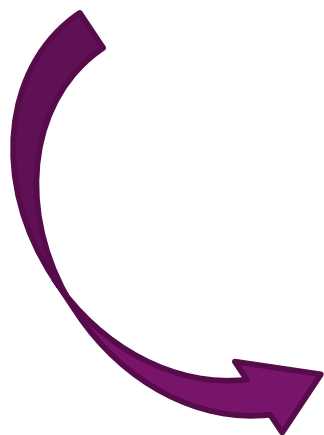
Takes too much space, 6.5 V module not used, power consumption of new digitisers much lower than that of the first generation (~ 1/3)...

Passage from linear to switch mode for 48V units
→ important size reduction (4u → 3u)



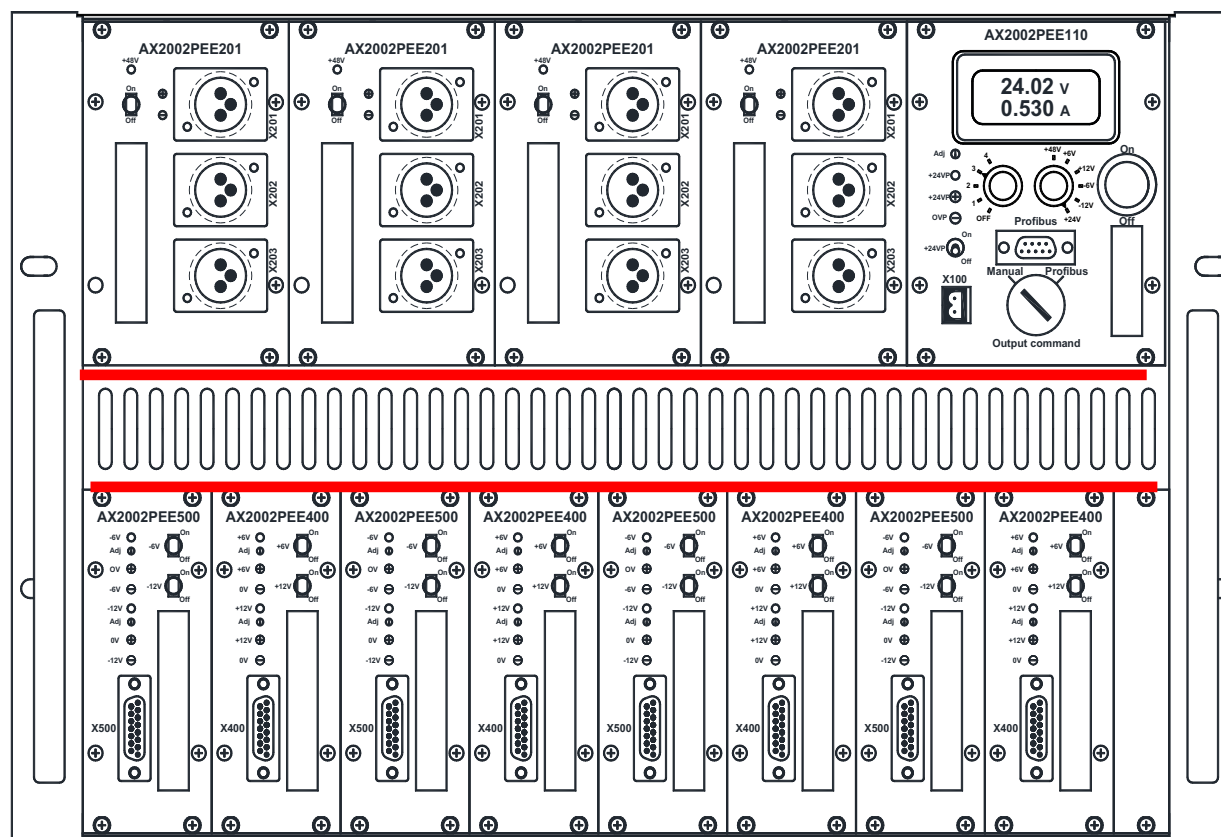
SOLUTION A: VERSION FOR 3 ATCs

- Height: 7 U = 311 mm
- 48V module: 3 x 70 W or 3 x 300W; one power supply with 3 fuses on the front
- 6/12V modules: larger size (better cooling by air)
- EMC problematic: installation of 2 shielding plates, a lot of caution (wiring, i/o filters...)

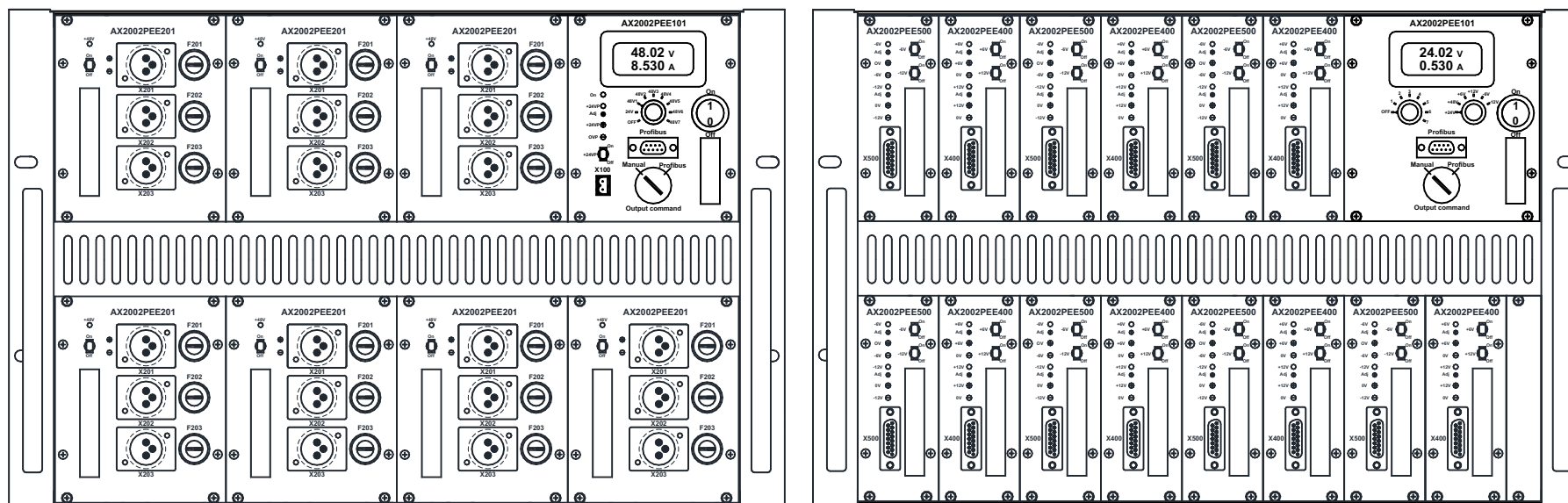


SOLUTION B: VERSION FOR 4 ATCs

- Height: 7 U = 311 mm
- 48V module: 3 x 70 W or 3 x 300W; fuses on the side (need to take the module out to access them)
- EMC problematic: installation of 2 shielding plates, a lot of caution (wiring, i/o filters...)



- Height = 2 crates of 7 U = 2 x 311 = 622 mm
- 48V module : 3 x 70 W or 3 x 300W
- 2 Profibus modules (for 48V and for 6/12V crates) → 2 Profibus addresses for variables



	Solution A	Solution B	Solution C
	(3 ATC per crate)	(4 ATC per crate)	(7 ATC per 2 crates)
Height	7 u (12 u presently)	7 u (16 u presently)	14 u (28 u presently)
Price per ATC	7300 EUR	6750 EUR	5430 EUR

- **Prototype: 4 to 6 months**
 - **tests foreseen at Saclay and GANIL**
- **Production: 2 - 4 months (depending on the number needed)**