

Status of the Apple-X control rack design



Mikhail Yakopov
UNSYS

Schenefeld, 20.02.2020

Outline

 PAUL SCHERRER INSTITUT
SwissFEL Solution

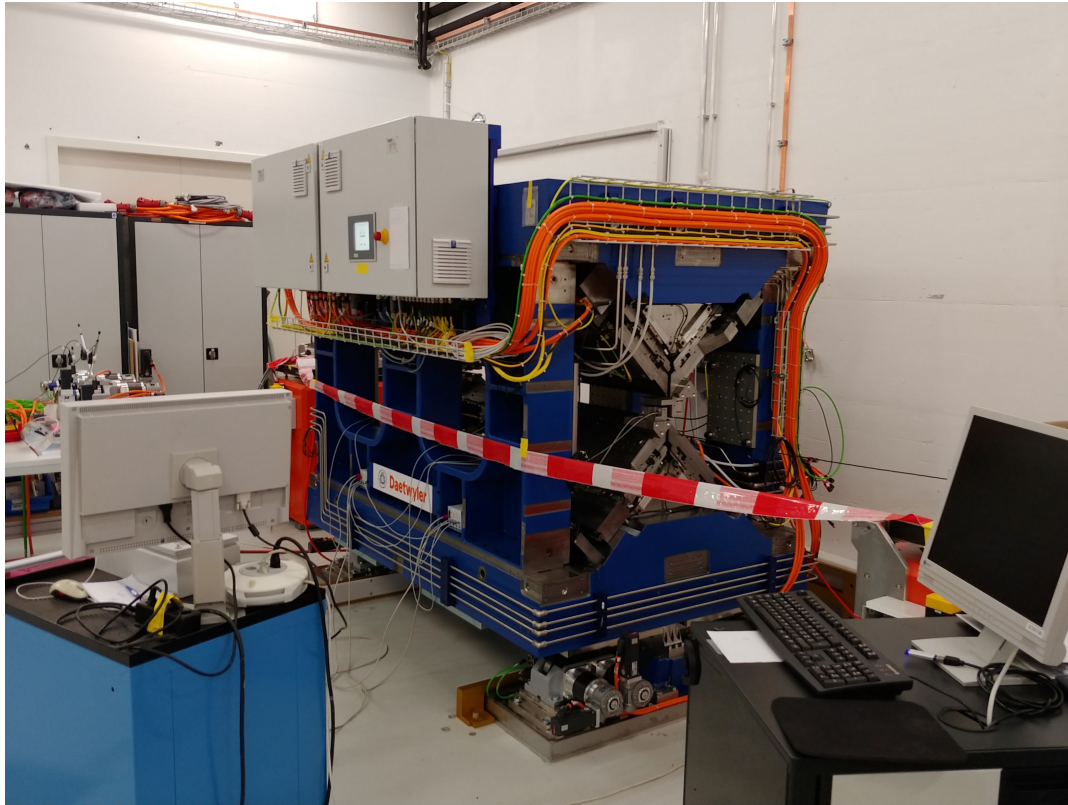
■ Requirements of the XFEL Apple-X Control System XFEL Apple-X undulator

■ Tunnel Installation Overview

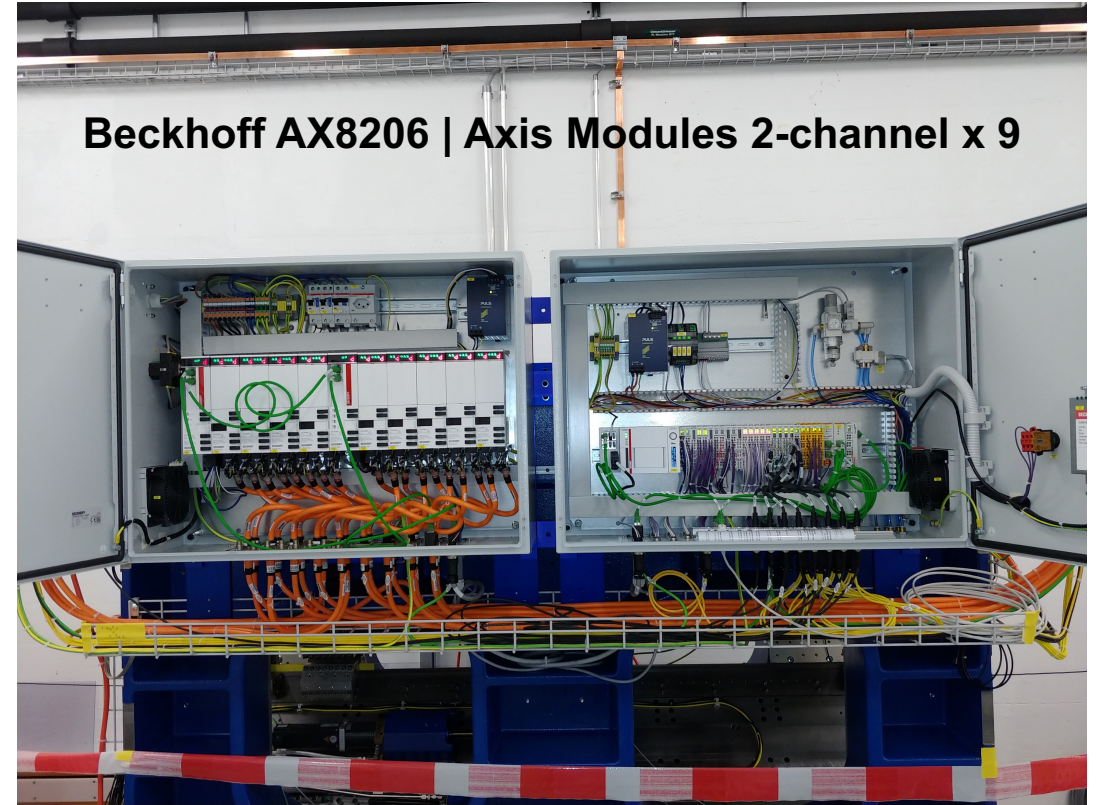
■ Current Status of the XFEL Apple-X Control Rack

■ Ongoing activities and outlook:

View of the PSI Control Cabinets



View of the PSI Apple-X undulator with the Control Cabinets Attached



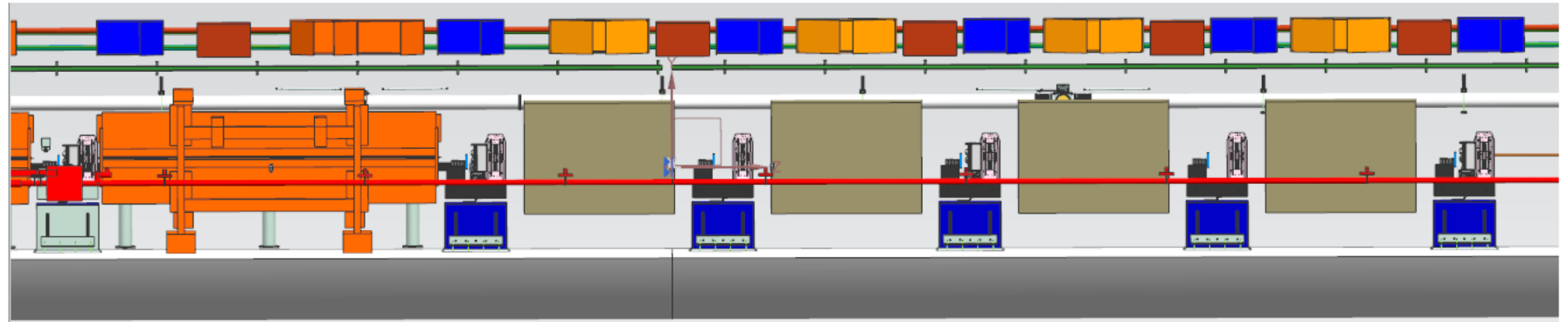
Detailed View of the Control Cabinets



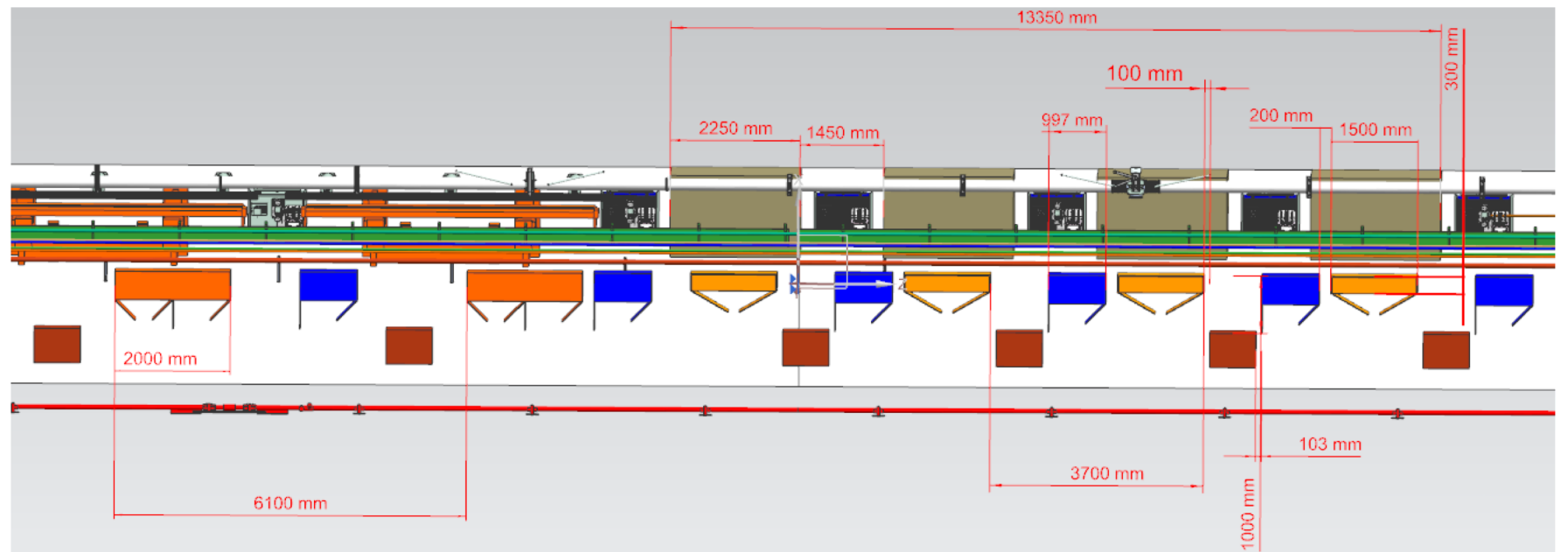
Requirements of the XFEL Apple-X Control System

- Fire detection system with door switches
- Almemo temperature measuring system → Will be upgraded using Beckhoff solution
- 3-Way regulation valve control system (Vacuum chamber temperature stabilisation system)
- Connection to the ICR (Control voltage on)
- Power supplies for the correction coils (4 Air Coils+2 TWCS, 6 channel power supplies, can be improved)
- C6925-0030 Accu-Pack, IPC safe shutdown system
- Switch off/reboot neighbor rack

Tunnel Installation Overview

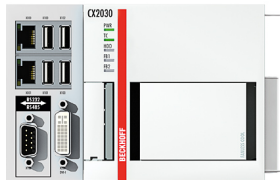


- 1 Cell 3700 mm
- Standard ICR 1m
- Compact Solution UCR



Current Status of the XFEL Apple-X Control Rack

IPC CX2030



AX8206



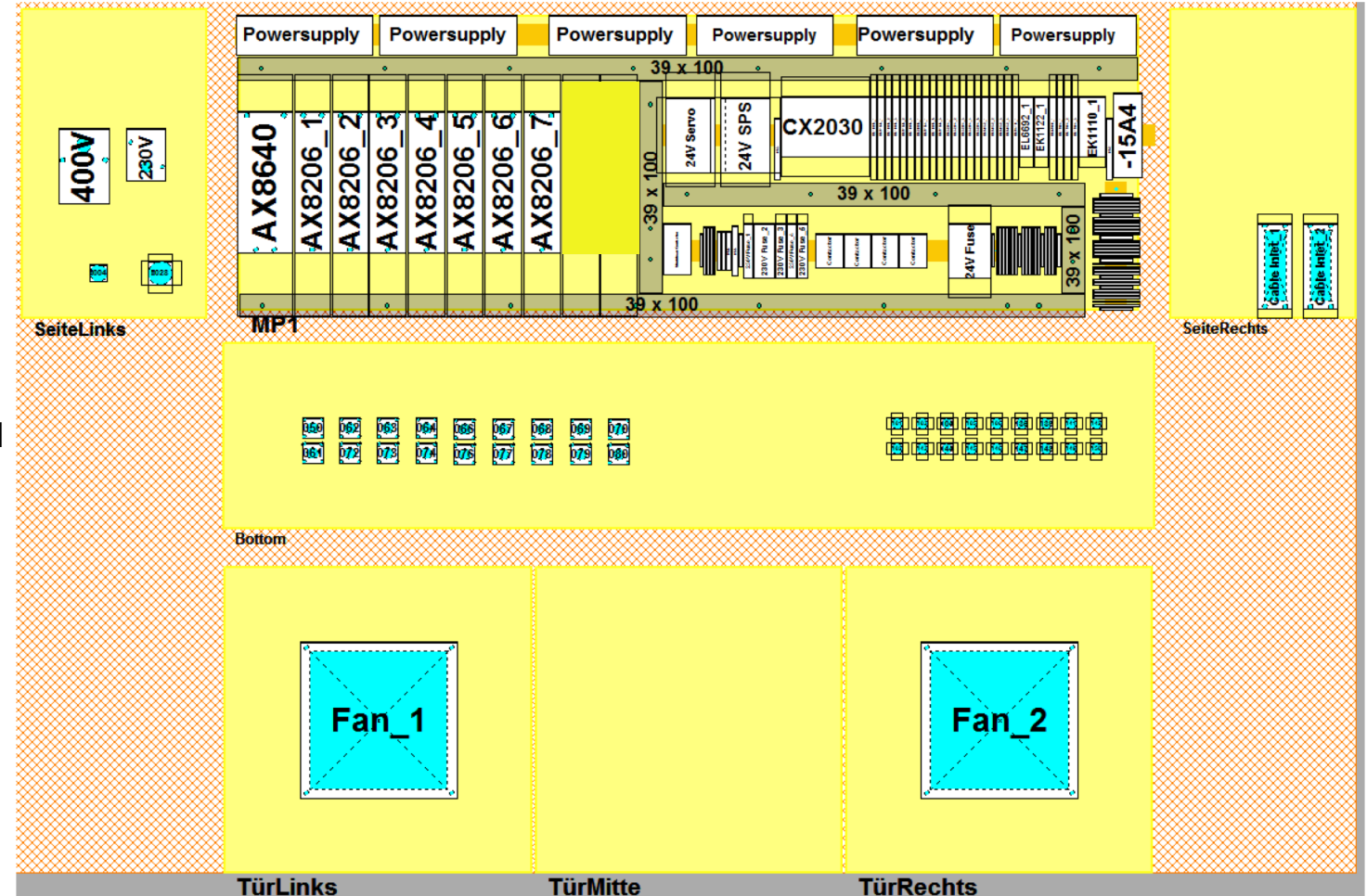
- Apple-X undulator - 8 Axes
- Cam Mover (undulator positioner) - 5 Axes

- Keep the PSI controls except for the PS control
- Add the XFEL controls

■ TwinCAT 3

■ One Cable Technology (OCT)

1500mm x 500mm x 500mm



Ongoing activities and outlook:

- Finalise the ongoing design of the UCR with the Beckhoff
- Approve the wiring diagram EPLAN
- Order the UCR prototype
- Commissioning of the prototype
- Order and commissioning of the remaining UCR

Thank you very much for your attention!