

The AFP Detector Control System

L. Seabra ⁽¹⁾, E. Banaś ⁽²⁾, D. Caforio ⁽³⁾, S. Czekaierda ⁽²⁾, Z. Hajduk ⁽²⁾,
J. Olszowska ⁽²⁾, P. Šícho ⁽⁴⁾, B. Żabiński ⁽²⁾

(1) LIP, Lisbon, Portugal (2) IFJ PAN, Cracow, Poland

(3) IEAP-CTU, Prague, Czech Republic

(4) ASCR Prague, Czech Republic

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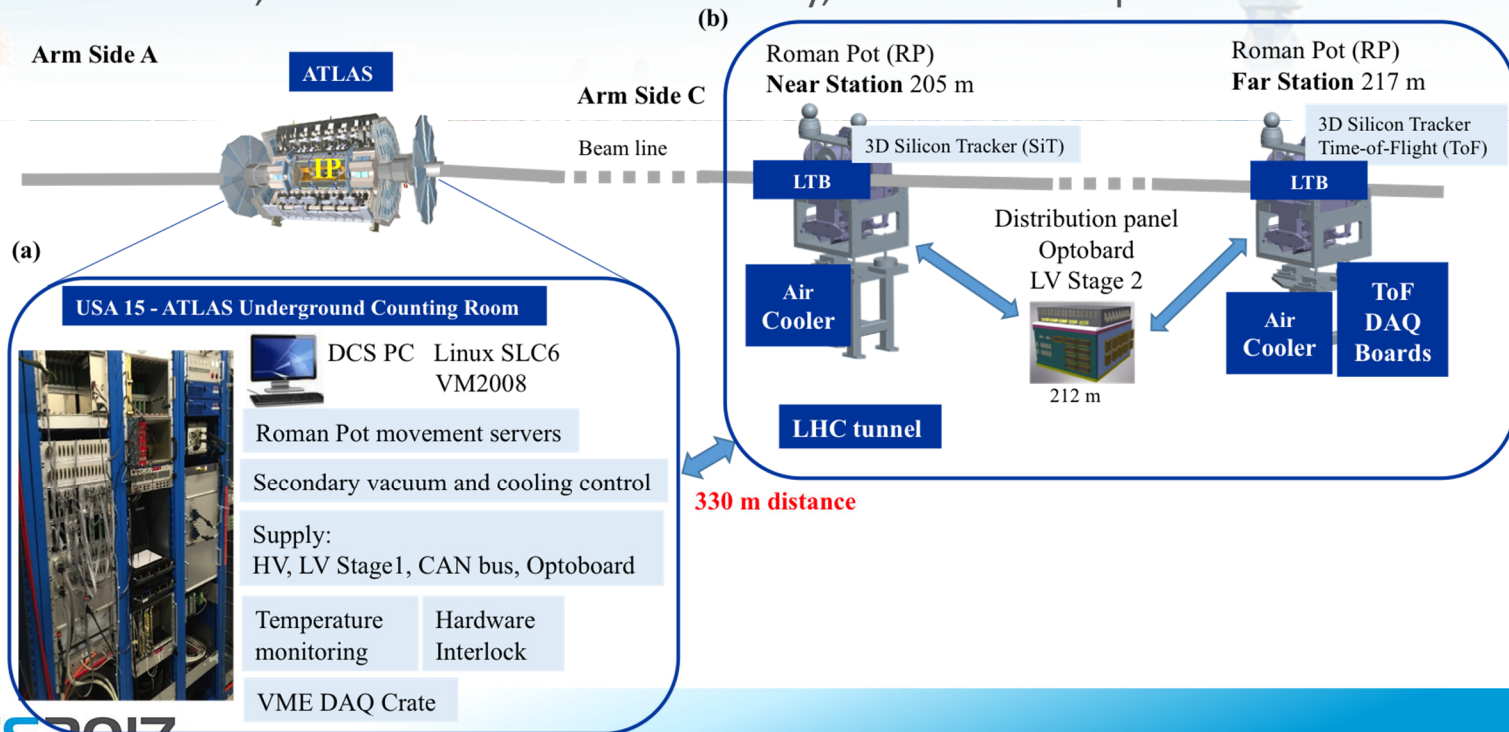
ATLAS Forward Proton (AFP)



- Tagging and measuring the momentum and emission angle of very forward protons
- Composed by four stations with silicon tracking detectors and Time-of-Flight detectors inside of Roman Pots
- Detector Control System (DCS):
 - Control and monitoring of components and ensures the safe operation of the detector for good data quality
 - Main challenge is to cope with the large variety of sub systems necessary for the detector operation
 - Supervisory Control And Data Acquisition (SCADA), WinCC OA

AFP DCS hardware overview

- Large variety of components were installed near the AFP station and also in the ATLAS service cavern, more than 300 meters away, for detector operation



Poster outline

- Detector introduction/overview
- Detector control system
 - WinCC OA
 - Finite State Machine
 - Graphical user interfaces
- Movement/Position System
 - Independent horizontal movement of 5 μm step inside the LHC beam pipe
- Secondary Vacuum System
 - Minimizes the bending of the thin window of the Roman Pot due to pressure difference between the pot and the primary LHC vacuum
 - Independent vacuum system in each arm: 10-40 mbar
- Cooling System
 - Cooling of the electronics and detectors
 - Cold air provided by Dry Air Vortex Cooling System (AirCooler)

