



SciFi Vacuum Control System

EP-DT-DI CONTRIBUTION



EP-DT
Detector Technologies

SciFi Vacuum Control System

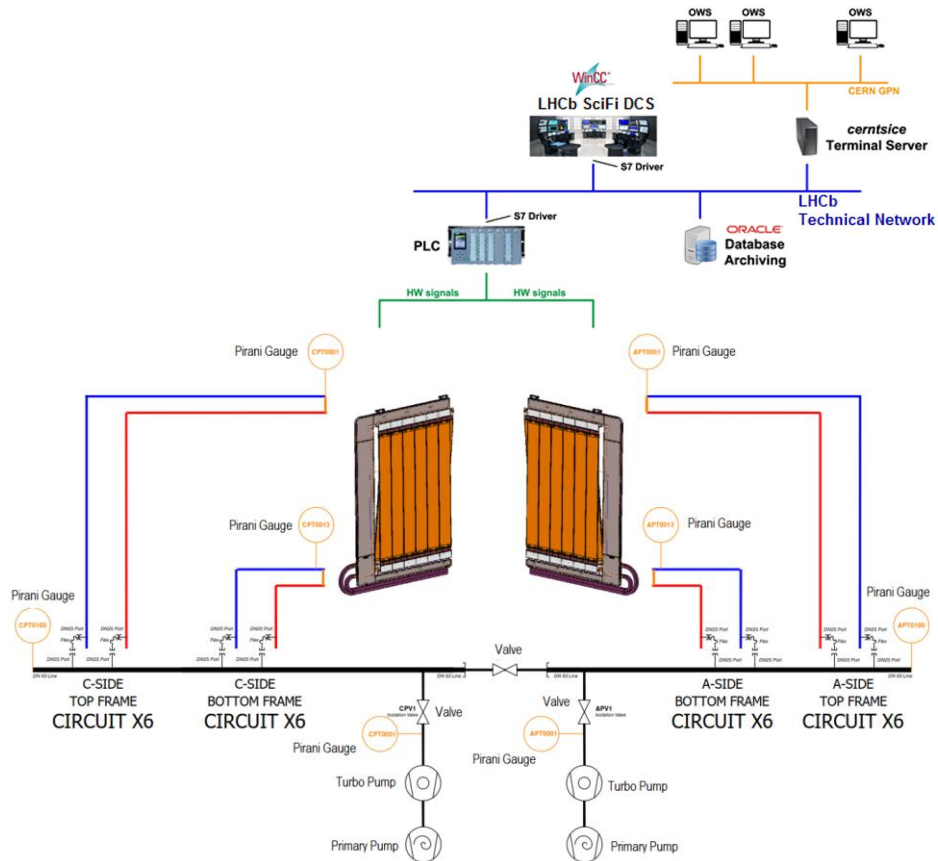
WP: <https://edms.cern.ch/document/1974407/1>

EP-DT-DI: Maciej Ostrega,

DT-DI will develop a hardware/software control system to maintain and operate the vacuum of the 48 distribution cooling lines between the mono-phase coolant Novec station and SiPM photodetectors operated at -40°C .

It consists of two pumping groups (turbo molecular pump + scroll pump), a small number of valves, 26 Pirani pressure gauges, two DN63 tubes with flexible 24 DN25 connections to the distribution lines.

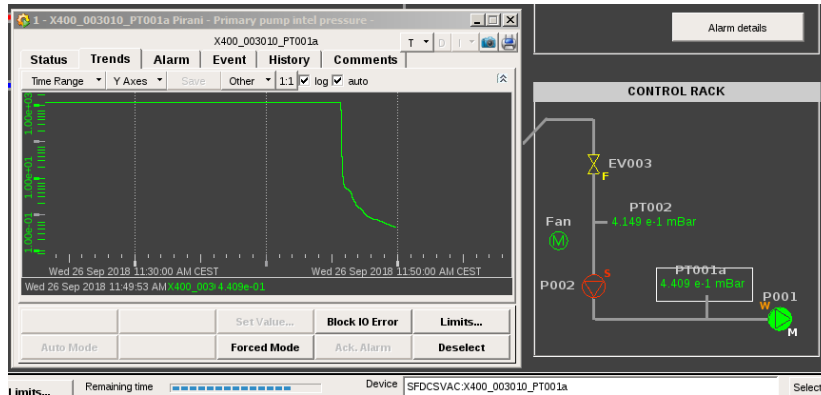
The control system is based on Siemens S7-1500 PLC using the UNICOS framework and connected/operated by LHCb DCS users.



LHCb SciFi Vacuum Control System layout

SciFi Vacuum Control System

A rack including the control PLC and a vacuum pumping station with its accessories has been already assembled by DT-DI and is being successfully operated by the SciFi Collaboration in a test detector frame at P8.



SciFi Vacuum Control System – WINCC display



SciFi Vacuum control Rack – Test Frame

SciFi Dry Gas Monitoring System

WP: Not yet defined

EP-DT-DI: Maciej Ostrega,

DT-DI has received the request to prepare a mass-acquisition system for a readout of up to ~500 flowmeters for the dry gas of C-frames.

This system will be similar to the one already implemented in the Neutrino Platform for mass-temperature acquisition or the ITK B154 setup.

System already tested at DT-DI workshop

The challenge is to manage the large quantity of signal lines, their distribution and the connections



Neutrino Platform Dual Phase –mass PT100 temperature acquisition system 6U crate