



Detector Support Group

Weekly Report, 2016-04-20

Ongoing Projects

I. Hall B Magnet Slow Controls (Brian, Tyler, Peter, Amanda)

Task: Define/develop EPICS screen(s) for power supply status/control

EDC: 03/15/2016

Activity: • None

Comments: • Installation and testing of torus tower.

Status: Delayed

II. Hall B Gas System: Slow Controls (Marc, Brian, George, Mary Ann.)

Task: Deploy LabVIEW based slow controls software system for **DC, LTCC, HTCC, SVT, MicroMegas, Forward Tagger, and RICH.**

EDC: 07/31/2016.

Activity: Developing software.

Comments: Present status:

#	Detector	Gas	Hardware		Software	Deployed	Tested
			Piping	Instrumentation			
1	DC	Ar/CO ₂	X [†]	✓	✓	✓	X
2	HTCC in Hall B	CO ₂	X	X	X	X	X
3	HTCC in TEDF	N ₂	✓	✓	✓	✓	✓
4	LTCC	C ₄ F ₁₀	X [†]	✓	✓	✓	X
5	SVT	N ₂	X	X	✓	✓	✓
6	RICH	N ₂	X	X	X ^{††}	X ^{††}	X ^{††}
7	Micromegas in EEL V.1	Pre-mix Ar/C ₄ H ₁₀	✓	✓	N/A	N/A	N/A
8	Micromegas in EEL V.2	Mix Ar/C ₄ H ₁₀	X	X	N/A	N/A	N/A
9	Micromegas in Hall B	Ar, C ₄ H ₁₀ , C ₂ H ₆ , Ne ^{††} , CF ₄	X ^{††}	X ^{††}	X ^{††}	X ^{††}	X ^{††}



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10	Forward Tagger in EEL	N ₂	✓	✓	N/A	N/A	N/A
11	Forward Tagger in Hall B	N ₂	X ^{††}	X ^{††}	X ^{††}	X ^{††}	X ^{††}

† Waiting on Hall B Engineering. †† Waiting for more information.

Status: No progress.

II. Hall B Gas System: DC Hardware in hall (George, Marc, Mindy, Sahin, Anatoly)

Task: Install Gas System hardware.

EDC: N/A (Depends on HallB Engineering)

Activity: **Sahin and Mindy setup UPS on SFL3.**

Comments: George: *"I updated the DCGAS and LTCC gas system critical path documents. In both cases we are waiting for critical path items to be completed by Hall B Engineering before we can continue."*

Status: No progress.

III. Hall B Gas System: LTCC Hardware in hall (George, Marc, Mindy, Sahin, Anatoly)

Task: Install Gas System hardware.

EDC: N/A (Depends on HallB Engineering)

Activity: LTCC instrumentation hardware done.

Comments: George: *"I updated the DCGAS and LTCC gas system critical path documents. In both cases we are waiting for critical path items to be completed by Hall B Engineering before we can continue."*

Status: No progress.



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IV. Hall B HDICE (Mary Ann, Peter, Amanda, Tyler, Mindy, Sahin)

Task: Fabricate RF box. Task includes draw fabrication drawing in AutoCAD, write drivers for DIO modules, and develop RF box test program review.

EDC: N/A.

Activity:

- Rewrote drivers to switch address.
- Worked on power switch.
- Completed safety cover Plexi-glass shield.

Comments: None

Status: Work in progress.

V. Hall B HDICE (Peter, Amanda, Tyler, Mary Ann, Mindy, Sahin)

Task

- Develop calibration test program for the CAEN current transducer box.
- Develop and test instrument drivers.
- Calibration test 0—25 A, step size 1 A, 1000 measurements/step.

EDC: N/A.

Activity: Testing in progress.

Comments: None.

Status: Work in progress.

VI. Hall B RICH (Tyler, Amanda, Peter, Brian, Mary Ann, George, Mindy, Sahin, Marc, Anatoly)

Task: Gas System Meeting.

EDC: N/A.

Activity: Scheduled for 04/25/2016

Comments: None.

Status: Scheduled for 4/25/16.



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VII. Hall D PLC Systems (Pablo, Peter, Brian, Tyler, Amanda, Mary Ann, Marc)

Task: Generate Allen Bradley report for solenoid and check voltage tap channels.

EDC: 04/27/2016

Activity: Checking components in chassis.

Comments: None

Status: Work in progress.

VIII. Hall D Data basing of solenoid Voltage Taps (Amanda)

Task: Develop ROOT code to analyze PXI data

EDC: 07/31/2016

Activity: Investigating current ROOT code.

Comments: None.

Status: Work in progress.



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Antonioli, Mary Ann

Hall B

HDICE

- Added wiring of switch to AutoCAD drawing of RF Switching/Attenuation unit.
- Attempted to switch addresses of two DIO modules.
 - ★ Received error. After troubleshooting, changed the code, and addresses were changed.

DSG

- Cleaned up photo folders for DSG website Photo Log.

Arslan, Sahin

Hall B

HDICE

- Built Plexiglas safety shield cover for Oxford Power Supply



MicroMegas

- Setup gas mixing system Argon/Isobutene for MVT in EEL room 124.
 - ★ Waiting on gas.



Argon Isobutane mixing system setup



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RICH

- Transferred two optical tables from big clean room 125 to small clean room 121c.

DC

Replaced Argon/CO₂ gas bottle.

- Transferred and installed with Mindy UPS power Supply, to Hall B SFL3, for gas system control rack.
 - * Found one more HV main frame, it was behind the hall in the storage trailer, transferred it to EEL to be tested

PRAD

Replaced Ar/CO₂ 30/70

Bonneau, Peter

Hall B

HDICE

- Testing of the ICP-CON DIO modules with MaryAnn.
 - * DIO modules were reporting a timeout error. The device driver testing had inadvertently set the watchdog timer on the modules to zero. The modules were re-programmed and the time-out error was corrected.
- Advising MaryAnn on the layout of the AC supply wiring for the 3rd RF Switching/Attenuation Unit.
 - * Sketches of the AC distribution / power inlet /switch /fusing was developed.
- Advising Sahin on the layout and construction of the protective DC bus-bar shield for the new HDice Oxford Mercury IPS 120Amp power supply.

SVT

- Monitored SVT Hardware Interlock System on a daily basis.
 - * When modules are powered, the coolant temperature has been stable at ~ 5C. Study underway to lower the temperature even further.
 - * Updated (Windows 7 & LabVIEW) SVT Hardware Interlock System monitoring computer located in EEL R121C.

Hall D

- Held daily meeting on Hall D status and EPICS controls monitoring.
- Showed Pablo the Hall D controls directory structure and location of the PLC files.
- Monitored Hall D slow control systems on a daily basis.
 - * On Monday there was a low-level CO₂ gas pressure alarm on the CDC because the pressure was less than 35 PSI. The CO₂ regulator was adjusted to ~ 48 PSI to remedy the issue.

DSG

- Added new features to the DSG Web Site.
 - * An interface was developed for website featuring all of the DSG work photos.
 - * Updated DSG website page links, and notes index.



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Campero, Pablo

Hall B

HDICE

- Corrected Target System Diagram.

Hall D

Slow Controls

- Corrected and divided PLC control system of Solenoid report.
 - ★ Analyzed the generated report of the control program update on 4/6/16 in RS-Logix5000 software.
 - ★ Reviewed every input and output in the modules established in the 4 chassis of the Solenoid control system to verify if the spreadsheet generated (existing hardware) by Hall D personnel is the same that is displayed in the control program.
 - Noted in the control program that the Voltage tag VVT starts at VTT3 and ends at VTT21.

Detectors

- Monitored logbook with Peter, Tyler, and Amanda.
 - ★ Noted on 4/17 that Goniometer was broken; it was found in a “controller error” on the expert GUI for Y position.
 - ★ Noted that FCAL Alarm was temporarily disabled for channel hv:17:21.

DSG

- Took Property Custodian Training.

Eng, Brian

Hall B

SVT

- Gain scans on remaining spare modules, now all modules (except 3 [clear box, bad data connector, LV short]) have been tested.
- Troubleshooting R4 HV not turning on with Sue, rebooting IOCs didn't help. Turning MPOD on/off via GUI + rebooting IOC seems to have brought back functionality of HV to R4.

Gas System

- Made plot for HTCC during low pressure front (thunderstorm)

Magnet

- Created local clasrun account on clonxt4 (Mac mini on SFL2N) to be used as terminal for EPICS screens.



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Hoebel, Amanda

Hall B

HDICE

- Worked with Tyler on CT-Box calibration.
 - ★ Assisted with creating graphs with error bars in Mathematica.

SVT

- Monitored currents.
 - ★ Noticed a trip on Friday- possibly due to difficulty turning on region 4.

Hall D

Magnet

- Designed voltage taps schematic in AutoCAD.
- Wrote paper on creating voltage taps database in SQLite.

Detectors

- Monitored logbook.
 - ★ CO₂ pressure in CDC and FDC dropped below 35[psi] and gave a warning in EPICS. Pressure has been adjusted to 48[psi].

DSG

- Created PowerPoint on work done for Hall D.

Jacobs, George

Hall B

Gas Systems

- Ordered Corlock corrugated nylon for DCGAS manifolds, 100ft.
- Ordered DCGAS nylon tubing from New Age Plastics.
 - ★ 3300' of 1", 700" or 1/2", and 750' of 1/4 inch.
- Multiple discussions with R. Carter and Praxair on missing gas orders for MVT, 10% Isobutane in Argon and instrument grade Isobutane.
- Submitted FML work request to fix golf cart.
- Modification of DCGAS operators manual for new system in progress.
- Discussions about DCGAS buffer tank pressure control algorithm.
- Ordered 6 additional cylinders of 30% CO₂ in Argon for PRAD.

Leffel, Mindy

Hall B

SVT

- Wire bonding FSSR2 chips to HFCB.
 - ★ Finished wire bonding chip U2 and started U1.

Gas System

- Installed UPS with Sahin.
 - ★ Transferred UPS from the EEL to the third level of the spaceframe.
 - ★ Installed it in the system control rack.



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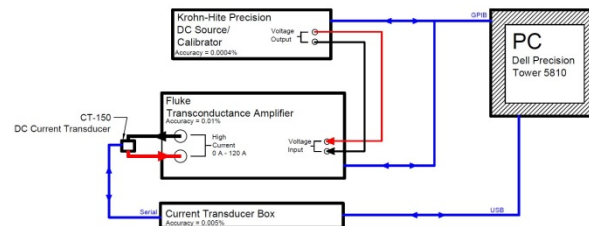
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Lemon, Tyler

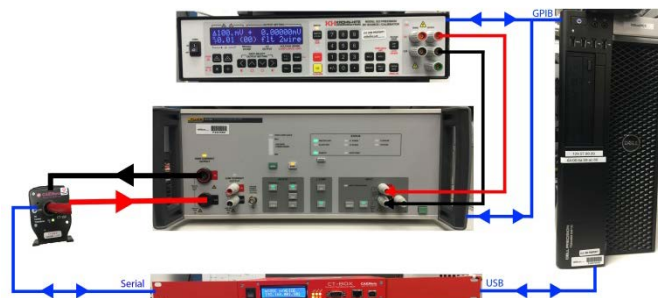
Hall B

HDICE

- Wrote CT-Box Calibration test VI with Amanda.
 - ★ VI sets a demand current.
 - ★ Takes 1000 current measurements using CT-Box.
 - ★ Writes measurements to text file.
 - ★ Increases demand current from 0 [A] – 25 [A] with 1 [A] steps.
- Analyzed measurements from above CT-Box calibration test using Mathematica.
- Created system diagram abstraction and realization for CT-Box calibration test.
 - ★ Drew system diagram abstraction in AutoCAD.
 - ★ Created system diagram realization in Photoshop.



System diagram abstraction



System diagram realization

Hall D

Detectors

- Monitored EPICS
 - ★ Noted on 4/18 warnings for low CO₂ flow in CDC and FDC gas system.
- Monitored Logbook.
 - ★ Noted entries stating on 4/19 the alarms above have been resolved by adjusting CO₂ regulators to increase flow.

DSG

- Guided Anatoly with Amanda and Pablo through the steps of the MPOD LV card test.
- Created PowerPoint slides for CT-Box calibration test in DSG Review presentation.



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McMullen, Marc

Hall B

Gas System

DC Gas

- Discussed DCGAS pressure control requirements to account for initial fill manual controls with George Jacobs and Brian Eng.
 - * Software must adjust flow in accordance to the tank pressure during the fill process.
 - * Updated GUI to include units for monitored values.

HTCC

- Monitored HTCC gas flow.
- Trained Youri Sharabian and HTCC staff on operating the system and rebooting.
- Studied past weather as it relates to atmospheric pressure and correlation to pressure change in HTCC with Eng.

LTCC

- Modified Controls GUI to fit touchscreen panel.

DSG

- Continued making Hall B gas controls slides for experimental readiness review.
- Updated Gas System documentation.
 - * All current gas system equipment is now documented by system.
 - * Added documentation to existing system photos.
 - * Added photos for the entire gas controls systems to the DSG photo directory, documenting each photo by system and location.

Sitnikov, Anatoly

Hall B

- Completed calibration MPOD LV card (total 1296 channels).