



Detector Support Group

Weekly Report, 2016-04-27

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: • **Torus pump down.**
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: **EEL/ TEDF setup all green!**
 Comments: Present status:

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

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



Detector Support Group

Weekly Report, 2016-04-27

11		Micromegas V.2	Mix Ar/C ₄ H ₁₀	✓	✓	N/A	N/A	N/A
12		Forward Tagger	N ₂	✓	✓	N/A	N/A	N/A
13	TEDF	HTCC	N ₂	✓	✓	✓	✓	✓

Status: Work in 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: None.
 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 Hall B 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.

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: None
 Comments: None

Status: Work in progress.



Detector Support Group

Weekly Report, 2016-04-27

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: Meeting with RICH collaborators.
Visited Hall B to assess space on Pi tower.

Comments: None.
Status: Work in progress

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.



Detector Support Group

Weekly Report, 2016-04-27

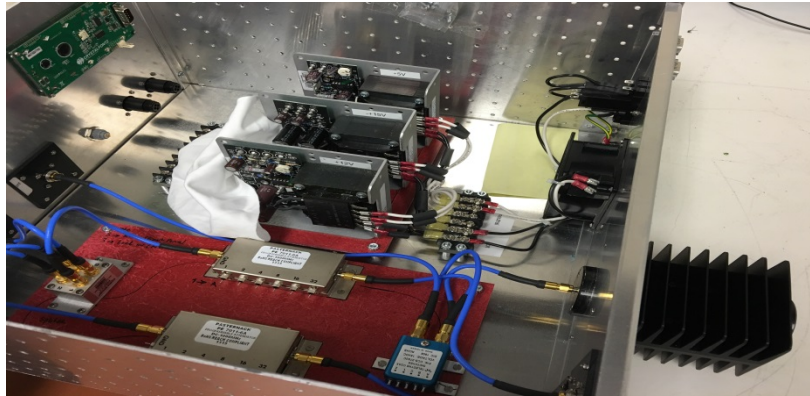
Antonioli, Mary Ann
Vacation

Arslan, Sahin

Hall B

HDIce

- Wired RF Box Power Switch.



RF Attenuation/Switching Unit

Micro Mega

- Gas arrived finally.
 - ★ Of two bottles supplied, installed one bottle of premix Isobutane/Argon 10/90
- Ran gas line to Argon bottle to flush the gas lines
- Transferred Isobutane LP gas to behind EEL Building.

LTCC

- Transferred to Hall B and installed UPS power Supply for gas system control rack.

SVT

- Replaced N2 gas bottle

Bonneau, Peter

Hall B

HDICE

- Troubleshooting initialization sequence in NMR program for routing of RF signals.
 - ★ Program indicated a status error when reading back status of Adiabatic Fast Passage (AFP) attenuator.
 - ★ Found that hardware updating of the RF Switching/Attenuation Unit added additional status bits (cable and termination) to the ICP-CON 7053 Digital Input Module which was not masked out from AFP attenuator read-back.
 - ★ Addition of proper bit mask for AFP attenuator fixed error.



Detector Support Group

Weekly Report, 2016-04-27

- Working with MaryAnn on the development of the software for the ICP-CON DIO modules.
 - * Discussed next steps in programming of DIO modules.
 - * LabVIEW VISA device drivers developed and tested will be used to implement higher-level VI's which are hardware specific to the RF Switching/Attenuation Unit.
- Working with Sahin on installation of AC supply wiring into the 3rd RF Switching/Attenuation Unit.
 - * AC distribution within the RF Switching/Attenuation Unit has been completed.
 - * Testing of AC distribution completed. The three power supplies, fan, switch & fusing is working correctly. All voltages have been measured and adjusted.

SVT

- Monitored SVT Hardware Interlock System on a daily basis.
 - * Current program running on the SVT Hardware Interlock System NI cRIO system is using 52% of the available memory. This leaves enough room for planned upgrades.

Hall D

- Held daily meeting on Hall D status and EPICS controls monitoring.
- Monitored Hall D slow control systems on a daily basis.
 - * The solenoid current was raised to 1345 amps for testing. The solenoid will be held this current until April 28th.

DSG

- Added new features to the DSG Web Site in preparation for the DSG Group Report.

Campero, Pablo

Hall B

HDICE

- Discussed with Peter specification and components of project.
 - * Requested Xiaodong or some characteristics and values for the RF-Box amplifier, NMR Pick up coil and Lock-In amplifier SR844.

Gas System

- Discussed with Amrit about re-tagging some names in the Gas Shed panel.
 - * The existing names are blurry and the others are too small; it needs to be remarked.

RICH

- Helped to Dario and Sandro planning future location of the components for the RICH.
 - * Passed through in Hall B installations to check for room on platform.
 - * Took pictures of locations and elements that are situated there.



Detector Support Group

Weekly Report, 2016-04-27

Hall D

Slow Controls

Hall D PLC.

- ★ Found wiring schematic mentioned in spreadsheet of chassis1 of PLC control system for the solenoid magnet.

Detector

- Monitored logbook.
 - ★ Noted on 23/04 that there was an alarm on CDC:hv:H:1. Tried turning HV off then back on, but the channel trips again at ~20 [V].
 - ★ Checked the external values magnetic fields on the solenoid magnet. Noted that these values are measured in [G].
- Monitored Epics.
 - ★ Monitored screen of Solenoid Magnets Coils.
 - ★ Monitored the values of the flows in CDC, it was in 0.90 [l/s] and 94 [sccm]

DSG

- Discussed with Peter about new task on power supplies Mercury iPS.
 - ★ Reviewed Manual Manager Support Information to get familiar with the commands and available configurations in this power supply.
 - ★ Investigated new update for the firmware for the iPS Mercury power supply.
- Started to set up the new computer DSPLC1.
 - ★ Connected hardware for new PC.
 - ★ Established Ethernet to get access to JLAB network and work with M drive.
 - ★ Put in a CCPR to become administrator on new computer.
 - ★ Installed LabVIEW 2015 software.

Eng. Brian

Hall B

Hall B

SVT

- Meeting - Bad R1 HV modules seemed to have recovered somewhat, can now bias at 50 [V].
- Debugging ROOT.
 - ★ Plotting failing on Mac mini for gain scans.
 - ★ Will try to move to Linux box, but it has repository issues.

MicroMegas

- Changed settings on controller to match MFC flow full scale units.
- Purged lines with Ar.

HDICE

- Teleconference with Craig, who said would spend a day to look at notebook for next teleconference next week.



Detector Support Group

Weekly Report, 2016-04-27

- Looked at LabVIEW 2008 code to handle negative current on Oxford. Got it so the main VI could set it in manual mode, the load settings VI could read it, however when actually doing the sweep the time spent ramping was much shorter than expected. Oxford VIs are very erratic, sometimes reading current/field and vice-versa.

RICH

- Meeting to discuss current plans for testing and assembly

Hoebel, Amanda

Hall B

HDICE

- Made stacked sequence structure in LabVIEW using VISA.
 - ★ Will apply to HDICE program.
- Met Xiangdong Wei to discuss HDICE, with Tyler and Pablo.
 - ★ Discussed NMR procedure.

Hall D

Magnet

- Discussed updating DSG copy of PLC locations spreadsheet with Tim Whitlatch and Pablo Campero-Rojas.
 - ★ Gave path to DSG copy to Tim and Nick to check.
- Received wiring schematics from Nick.
 - ★ Discussed with Pablo the schematics for PLC voltage taps- VTT1 and VTT2 channels still on PLC but not used.

Detectors

- Monitored logbook.
 - ★ Spring run finished, magnet currently at 1345[A] for testing until Thursday.

DSG

- Attended RICH meeting.
- Updated computer inventory spreadsheet.
- Gathered Hall D project summaries for website.
- Installed software on desk computer and DSG group computer.
 - ★ Installed NX 9.0 and LabVIEW 2015.

Jacobs, George

Hall B

Gas Systems

- Created DCGAS piping diagram showing gas mixing and supply system in 96B (M drive).
- Discussions about moving the R2 drift chambers stored in the ESB in order to permanently install the forklift charging station in that location.
 - ★ Will not be done till October.
- Created Power Point for five gas mixing system for MVT, 6 slides (M drive).



Detector Support Group

Weekly Report, 2016-04-27

- Supported MVT group, argon purge and pre-mix supply operational, ready to switch over to gas mixing.
- Updated MVT 5 gas mixing DWG for use in power point (M drive).
- Participated in RICH DSG meeting.

Leffel, Mindy

Hall B

HDICE

- Finished terminating cables for the RF box.
 - ★ Completed 9 of 9.

Gas System

- Worked with Sahin to transfer Isobutane gas cylinder from gas shed to the back of the EEL building.

SVT

- Wire bonding FSSR2 chips to HFCB.
 - ★ Continued with chip U1.

LTCC

- Worked with Sahin installing power supply on SF L1.

Hall D

- Attended tech meeting.

DSG

Safety

- Attended meeting for investigation results from Florida State Univ. fatal mishap.

Lemon, Tyler

Hall B

RICH

- Visited Hall with Marc, Pablo, Sandro, and Dario to view potential location of compressors and tank for cooling detector electronics.

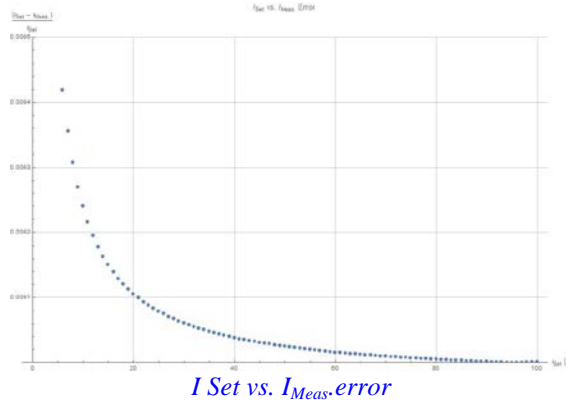
HDICE

- Commented and cleaned LabVIEW code for CT-Box calibration test.
- Analyzed results for test from 0 [A] – 25 [A] with 0.05 [A] step-size in Mathematica.
 - ★ Used calculated linear fit $f(x) = 0.00268 + 0.99997x$ to extrapolate measured current ($I_{Meas.}$) for set current (I_{set}) range of 0 [A] – 100 [A].
 - ★ Plotted I_{set} vs. $(I_{set} - I_{Meas.}) / I_{set}$
 - ★ Noted from plot that $(I_{set} - I_{Meas.}) / I_{set}$ tends to 0.003% as $I_{set} \sim 100$ [A].



Detector Support Group

Weekly Report, 2016-04-27



Hall D

Detectors

- Monitored Logbook
 - ★ Noted entry stating on 4/25 CDC HV channel H:1 alarmed and tripped off at -20 [V].
- Monitored EPICS.
 - ★ Noted that EPICS didn't display that the above CDC HV channel had tripped.

DSG

- Created concise list with Amanda of Hall D work done by DSG from weekly reports.

MPOD Test Station

- Developed procedure with Pablo to measure current output of LV card.
 - ★ Set voltage from 0 V – 2.8 V with 0.05 V steps using MPOD control software.
 - ★ Measure output current using MPOD readback and Keithley multimeter.
 - ★ Guided Anatoly's work on current measurements.

McMullen, Marc

Hall B

Gas System

DC Gas

- Edited LabVIEW code for mixing gas.
 - ★ Initial code used global variables, replaced global variables with standard controls and indicators. Sub-VI was then added as part of the gas controls software.
- Started LabVIEW code changes on the program used for filling the buffer tank with mixed gas.

RICH

- Went to RICH detector testing and assembly meeting.
- Attended RICH detector mechanical meeting.
- Conducted a tour of Hall B for the RICH detector collaborators.
 - ★ Discussed detector installation and equipment locations.

Sitnikov, Anatoly

Hall B

- Calibrated MPOD LV card (second step-DC), total 456 channels Anatoly